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ABSTRACT OF

The Edward Jenner Lecture

ON

SCHOOL HEALTH.

Delivered at the Medical School of St. George's Hospital (University of London),

BY F. E. FREMANTLE, M.B. OXON., F.R.C.P. LOND., F.R.C.S. ENG., D.P.H.,
COUNTY MEDICAL OFFICER FOR HERTFORDSHIRE.

[AFTER pointing out that school children are entrusted to the State for a large part of their malleable life and that consequently the State has both a responsibility and an opportunity of moulding its future citizens in accordance with the rules of health and medical experience; that the science of public health has changed its position, enlarged its field of view and scope of action; and epitomising the history of the rise of school medicine, Mr. Fremantle continued:]

It was in Wiesbaden that our English system of attention to school health had its origin, attention being there focussed on the child rather than on its surroundings, and provision being made for thorough physical examination of every child on admission and in the third, fifth, and eighth years of school life, as well as for the detection of infectious disease and the inspection of premises. In 1898 this method was adopted in the towns throughout Germany, and by the time it was transplanted to Great Britain medical inspection had been established in most civilised countries of the world, including North and South American States, and since 1898 as a complete system in Japan.

The duty of inspecting all children in English public elementary schools was enacted by the Education (Administrative Provisions) Bill, 1907, which gave education authorities also the power to provide treatment of defects. The Board of Education is responsible for supervising the work. The principles of action that guide the Board are in a less formal way described in the annual report of Sir George Newman, chief medical officer to the Board, which is published towards the end of every year. I would strongly advise your expending 8½*d.* on the report for 1908, which contains the circulars of the Board and the provisions of the Code relating to this subject, in addition to an attractive account of the first reports of the work from all parts of the country.

OBJECTS AND PRINCIPLES OF MEDICAL INSPECTION.

In these circulars the Board lays it down that it aims not at an anthropometric survey but at the physical improvement, and as a corollary at the mental and moral improvement, of future generations. The broad requirements of a healthy life are few and elementary, but essential and economical, both to the individual and to the community, by reason of the consequent decrease of inefficiency and of destitution in after life. It was shown that the health of school and of home go together, and that in this matter the local education and the local sanitary authorities should coöperate.

The system thus inaugurated has been criticised as providing only for inspection of defects without providing for their cure. This, however, is sound. The first need is a knowledge of the nature and extent of the defects to be met; the second need is the distribution of such information to the parents, on whom the direct responsibility should continue to rest; the third need is the stimulation of charity and of every existing agency to undertake the treatment of these defects; the fourth need is a knowledge of the cases remaining untreated and the reasons for such neglect. Then, and then only, will it be possible to present a case for providing means of treatment; and then it will be far better to proceed by an extension of existing methods and principles of medical provision rather than to inaugurate a new system of school clinics, as they are called, for this particular purpose.

Medical inspection, then, is the basis of the system, a routine inspection at certain stated periods in every child's life and a further periodic inspection whenever the school doctor or the teacher thinks it advisable. But this inspection is only the framework. On it must be built up the whole system of physical education, interwoven as it must be with the existing system of moral and mental education. The school teacher, therefore, must be trained and accustomed to consider the bodily health in every detail of school life; and the school doctor must hold himself responsible that due attention is paid to the rules and conditions and habits of health at every turn of the educational machine. It is no mere inspector that is required, but a family doctor to the school, with a "cure" of the bodies comparable to the "cure" of souls for which his clerical brother is responsible.

The main objects, then, are three:—1. The health and future ability of each child. 2. The healthy influence of each child on its neighbour. 3. A statistical record by which to compare the health of different schools and communities or of different years and periods, and so to arrive at the effect of different social conditions in promoting or retarding health.

The main principles to be observed are therefore as follows:—1. The gradual installation of the school doctor as the general and responsible guardian of the school health. 2. The gradual installation of the school teacher as the daily inspector of the children's health, and as the prime agent in the inculcation, both by reason and habit, of school hygiene. 3. Continuity of medical inspection and record throughout the school life of each child. 4. A high degree of clinical experience, public spirit, and personal authority in the medical inspector. 5. Intimate connexion between those in charge of the child's health at school (the head-teacher and medical inspector) and those at home (parents and sanitary authority). 6. Sufficient participation by those in charge of school health in the whole work of the educational machine. 7. Accuracy, a uniform common-sense standard, and an efficient method of recording the facts observed; care in their compilation; caution in the deduction of results, and wisdom in the presentation both of facts and conclusions to the authority and to the public.

ORGANISATION OF MEDICAL INSPECTION.

By the end of 1908, 307 out of 328 local education authorities in England and Wales had already appointed school medical officers officially recognised by the Board of Education; 224 were medical officers of health. The Board, however, will recognise only one titular school medical officer for each local education area. The question, especially for counties, was then how to organise the work. Considerable difference must obviously be made between urban and rural areas. The intensity and the publicity of the problem and of the results in towns attract attention; but in this, as in every branch of public health work, it is in the villages that the causes of any condition can be traced to their sources and most easily remedied.

The special characteristics of rural conditions in this respect are:—1. The greater distances, allowing less work to be done in any one particular day. 2. The existence of fewer medical men, the only specialists among them being those that hold whole-time appointments as medical officers of health; while, on the other hand, the general medical practitioners have wider general interests and experience than their colleagues in the towns; they are a more permanent and integral part of the community, and their view is nearer to that of the intelligent laymen. 3. The school teachers are as a rule less highly trained, but know their children, parents, homes, and surroundings more intimately, and retain their influence over them after they have left the school. 4. The rural schools are smaller. 5 The village nurse, with her year's training in midwifery and sick nursing, is becoming as integral a part of rural life as the schoolmaster, doctor, or priest.

The methods actually adopted for the work in areas where the (chief) school medical officer requires assistance are: (*a*) By whole-time inspectors *ad hoc*, at a salary of £250 a year; these, however, if satisfactory, will be constantly changing; they are mere inspectors, unconnected with the Public Health Service, and narrowed by the very special nature and strict limits of their work. (*b*) By unofficial general practitioners, as in London, where quarter-time assistants are engaged. They, too, are unconnected with the Public Health Services, and are strangers to all concerned.

(*c*) In rural areas by the Poor-law doctors. They are conversant with the homes of the people and offer the great advantage of combining the work of prevention and cure. But they are as yet unconnected with the Public Health Service; they include many of the least competent practitioners, and their number intensifies the difficulty of administration. (*d*) By the district medical officers of health. This is the system adopted in Hertfordshire; against certain minor drawbacks it combines the advantages of local knowledge, permanence, broad interests, and full connexion with the Public Health Service.

The payment in the Hertfordshire system depends on several factors as follows:—(1) 1*s.* 6*d.* for each child inspected in due course, on receipt of a copy of the record-card at the county office. (2) Capitation fee of 3*d.* a year for every child on the books, in return for other work inevitably involved. (3) Travelling fee of 5*s.* a visit, up to four visits in the year, to schools outside the towns in which the officers reside. (4) Postage fee of 1*s.* a year for each school. This payment appears to be fair and satisfactory both to the officers and to the authority, and may be recommended for general adoption.

It is necessary to emphasise the importance of thus uniting the public health and school health services; for in the greater part of the country this ideal, laid down as we have seen by the Inter-Departmental Committee and by the Board of Education, has become a dead letter, and the separation of the services, except for the nominal supervision of the school medical officer, has been condoned and even commended by the Board. Before long it may be that the councils of county boroughs and counties will be the sole local authorities for all purposes. Then, it is to be hoped, there will be no difficulty in uniting the various local public medical services into one comprehensive system under a single chief medical officer. Then the duties should be so distributed that, as far as possible, the school work coincides with the public health work of every area.

Duties of School Doctors.

Let us, then, briefly run through the duties of the school doctor, as I prefer to call him, rather than use the cold, formal title of medical officer. The actual system in force in Hertfordshire will serve as a type, recognising that the details depend on a variety of circumstances and a variety of personalities, corporate and individual. Each area has to work out its own salvation, within the prescribed limits, as it thinks best. No one system can be adopted ready-made in every particular, in any other area than that in which it has developed.

1. *Routine inspections.*—Every child is inspected on admission and in the eighth and eleventh years after the year of its birth. Children are therefore inspected at 3–5 (or later), 7–9, and 10–12. The assistant school medical officer sends a postcard to the head teacher, giving a week's notice of his intended visit; and the teacher sends notice to the parents of children not previously inspected, inviting their presence. This also gives them the opportunity of sending a written refusal to allow inspection. Of nearly 14,000 children due for inspection last year, the parents of 44, or 0·3 per cent., refused inspection. Under the Children Act, 1908, however, the doctor has power, even in these cases, to inspect the cleanliness of person and clothing, and I have delegated similar powers to the school nurses. The inspection must take place in school hours—i.e., generally between 9 and 12 or 2 and 4, and on school premises unless special sanction of the Board is obtained for the use of other premises close by. A schoolroom has generally to be used for the purpose and the children from that room are crowded into another room or turned out into the playground. The apparatus consists of a good steel-yard weighing-machine, a measuring standard fixed usually for the occasion to the wall, and test-type at a distance of 6 metres (21 feet), with the doctor's own stethoscope and tongue-depressor. For this he often brings a packet of wooden gardeners' labels, using one end for each mouth, and throws them into the fire after use. It is not a detailed clinical examination, but a physiological inspection to find out the chief defects. Results are recorded on cards kept at the school, copies being sent to the county medical office.

2. *Special inspections* are at the same time made, either of children previously inspected and kept under observation or of children to whom attention is drawn by the teacher.

3. *The apparatus* is in general charge of the doctor, to whom the teacher is responsible for its care, the two county inspectors of weights and measures being held responsible for the condition of the weighing machines.

4. *The sanitary condition of premises* has to be observed and defects noted on a sheet form provided for each school, on which are printed all the items of structure and fittings throughout the premises, and columns are left for notes of defects and improvement year after year. Here it is of first importance to note the signs of cleanliness and proper use of every part—e.g., the opening of windows, the supply of drinking water, the use made of closets.

5. *The teachers*, and especially the head teachers, must be encouraged to pay attention to health and physical development at every turn of school life; and, as most of them have received no instruction in the subject, it rests with the school doctor to show them in what way the principles are to be attained. At every visit the doctor should find an opportunity to discuss some health question with the head teacher without appearing to offer instruction.

6. *The whole curriculum* should be surveyed by the doctor with a view to its bearing on school health. More especially will his attention be directed to the teaching of hygiene, to physical drill, to mental strain; but his influence may, and should, eventually reach to the full extent of the curriculum.

7. Much *correspondence* and many personal interviews are involved by every phase of this work—with parents, teachers, and attendance officers; with school managers and subcommittees; with the education, sanitary, and Poor-law authorities; and with charitable persons and agencies. The more that this can be done in person rather than by post the better; tact is of first importance, and the district medical officer of health is in a far better position to carry out these duties, and so influence the general population in the way of health, than the whole-time inspector for the country school.

8. *Cases should be followed up* to their homes in order that home conditions, which are often mainly responsible for defects, may be discovered, parents interested, and the children assisted to secure treatment.

9. Once every year the school doctors must supply an account of their work done during the year *for the annual report*, which the chief school medical officer has to prepare for the information of his authority and of the Board of Education.

Records of Medical Inspection.

It is impossible here to indicate the results obtained from these records. They provide, it is obvious, for a complete physiological survey of the whole elementary school population of the country, and the results, carefully handled, should be of national importance.

So far our figures of height and weight suggest that the town children belong to a better physical stock, although greater physical development occurs in the villages than in the towns; and that in increased degree the physical stock of Hertfordshire is less good than that of London, but that by the age of 12 the Hertfordshire children have passed those of London both in height and weight. Equally interesting figures—likely to be of the utmost profit to social reformers—are those derived in the comparison of clothing and footgear, nutrition, and cleanliness; while more specifically medical problems are suggested by the fewer defects of the teeth and of vision in rural areas at the later ages.

It is sufficient, finally, to refer to the total figures which show that only 6 per cent. of the children have perfect teeth; that 12 per cent. appear to have adenoids, 13 per cent. have defective vision, 13 per cent. have unclean or verminous heads, 44 per cent. are defectively vaccinated, while only 0·2 per cent. are found suffering in any way from tuberculosis.

The greatest possible care must be taken in the collection, recording, and analysing of these records, still more in deducing the causes and cure of the defects set forth. With such care the study is likely to be the essential and inevitable forerunner of measures to enhance very greatly the national physique.

Systems of Treatment.

What are these measures to be? In the first place, there are the absolute mental or physical cripples, the blind and

deaf, the imbecile and the mentally defective. For these cases London and the other large towns have special schools, both residential and day. They also have special schools or classes for tuberculous, paralysed, and other crippled children, who are taken there in a special ambulance carriage. Special open-air schools are also provided in the London suburbs, to which anæmic and ill-nourished children are sent for a season. For the defectives, in county areas reliance has usually to be put on residential schools belonging to private charities, to which the education authorities subscribe for so many beds. Many authorities now have, or are building, their own homes for the mentally defective and for the epileptic, who, however, must be educated in separate institutions from one another. The parents' consent is necessary, and a weekly parental contribution, where means will allow, is usually required.

For the treatment of curable defects the authority is allowed, subject to the sanction of the Board of Education, but is not obliged, to undertake treatment. The following are the alternatives:—

1. *School clinics*, or out-patient hospitals, established for the purpose. Eleven of these were sanctioned for the year 1909–10, including the purely dental clinic at Cambridge. For dental work there is need of some such institution. But merely for the treatment of skin and eye diseases and of adenoids it is difficult to justify such an establishment, if it is to be decently equipped and arranged. Occasionally, as at Hampstead, Wandsworth, and Norwood, such a clinic is provided by the medical profession in the locality, who together contract with the authority to staff and maintain it.

2. *Use of existing hospitals*, either voluntary or in return for a subsidy. London has such arrangements with three voluntary and 14 subsidised hospitals, adequate payment being made for the clinical assistants and for all expenses incurred. This arrangement is not generally approved by the medical profession, as it increases hospital practice and the privileged practice of the staff; it is not wholly satisfactory to the County Council, as the hospitals stipulate for complete freedom of action. Nevertheless, where the hospital almoners play their part well and refuse treatment to children whose parents can pay, the advantages of this method for the time being are obvious.

3. *Recognised surgeries* are proposed by the British Medical Association for county areas, in which a scale of fees would be payable to most medical men in these areas, after official appointment, for treatment of defects in their surgeries.

4. *School nurses only.*—In contrast to other suggestions the authority may decline to establish a new scheme of treatment. Parents should secure treatment, they may say, under present conditions at the hands of medical practitioners or charitable hospitals, the Poor-law having provided for medical treatment out of the rates for those who cannot afford payment. All that is then necessary is a system of nursing to persuade the parents of what is necessary and to see that it is carried out. In county districts, at least, this should be effected by a subsidy to local nursing associations for the employment of the existing village nurses, preferably through the medium of a county nursing association, which can supply the supervision and instruction necessary. Coördination of nursing in a single system for each county is thus also promoted.

This last system of coping with the physical defects of school-life is certainly at present inadequate. The Poor-law has not yet provided out-patient departments for this kind of work. But reform of the State medical services is at hand, and rather than create new institutions it is best for us to make the utmost use of existing institutions, and so show the need, in reforming the Poor-law or developing the system of State insurance, of creating machinery to deal with these cases of minor ailment in school children as an essential duty of a comprehensive and unified State medical service.

I hope, gentlemen, you will throw yourselves into this school work with zest. It is a fundamental factor in the public health and offers a prospect of immense benefit to national prosperity and happiness, which are primarily dependent on the national health, especially in the rising generation, and especially, therefore, in the public elementary schools.

ON CANCER.

CANCER REGARDED AS AN ADAPTIVE RESPONSE ON THE PART OF CERTAIN CELLS OR CELL GROUPS TO ENVIRONMENTAL CHANGE, AND AS THE RESULT OF A PROCESS OF VARIATION AND SELECTION OF AN "INTER-" OR "INTRA-" CELLULAR KIND.

BY C. J. BOND, F.R.C.S. ENG.,
SENIOR SURGEON TO THE LEICESTER INFIRMARY.

THE object of the following inquiry is to analyse, as far as they are known, the conditions under which the new cell characters which we associate with cancer arise in somatic cells; to inquire whether the three conditions which accompany variation and selection among other organisms are also concerned in the evolution of cancer. These are: (1) struggle for existence among cells; (2) cell proliferation; and (3) cell destruction.

We must start with the fundamental truth that every adaptive response made by cells to environmental change is the outcome of the interaction of two factors—environmental stimulus on the one hand and cell potentiality on the other. The response may be "direct"—that is to say, the conditions under which the reaction occurs may be comparatively simple, and the new cell character may arise in direct response to the changed conditions. Or the conditions of the response may be so complex as to elude analysis, and the new characters may appear to arise just as the so-called spontaneous variations arise in germ cells without any direct reference to the environmental change. In both cases alike, however—in the "direct" form of use acquirement and in the "indirect" form of innate variation—the process is essentially the same. It is one of variation and selection among individual units exposed to changed conditions. These units may be individual cells or they may be represented by the physiologically differentiated parts which compose the cells. In the one case selection will be on an *inter*-cellular, in the other on an *intra*-cellular plane.

Any consideration of the cancer problem must therefore include a consideration of the conditions under which certain cells (as the result of the interaction of environmental stimulus with cell potentiality) exhibit certain characters which enable them to live and multiply more freely under changed surroundings. In this sense, therefore, cancer may be regarded as an adaptive response, and it becomes important to ascertain the conditions under which the response is made.

If we recall the different varieties of cells which together form the individual soma of any multi-cellular organism belonging to one of the higher types, we shall recognise that, from the point of view of cell environment, they may be divided into two great groups: The connective tissue or hylic group (Adami) on the one hand, and the epithelial or lepidic group (Adami) on the other; or from the "adaptation" point of view the group without, and the group with external world relationships. As regards the individual cells of the first or hylic group the cell environment is a dual one; it is made up of the nutrient medium and the activities of neighbouring cells, and in a remoter degree of all the remaining cells which compose the organism. But for the epithelial cell the environment is a threefold one. In addition to the nutrient medium and the activities of neighbouring cells, it embraces also the stimuli of the external world or that portion of it with which the cell is brought into more immediate relationship.

Even those cell aggregates which, by downgrowth or outgrowth from the surface layers, form the glandular organs, although they have lost touch with many external stimuli, they still remain in potential or actual communication with the outside world. For even in their case the mucous channels, the ducts by which their secretions reach the surfaces of the body, serve as channels of communication between these cells and the exterior, and the temporary stasis of contents which frequently and intermittently occurs in these ducts, associated as it is with backward mucous currents, acquires additional importance from our present point of view.[1] The internal secretion of the ductless glands like the thyroid is in reality an external secretion retained under pressure and

[1] Address in Surgery, Bond, THE LANCET, July 29th, 1905, p. 275.

re-absorbed, and is associated with a primary origin of these glands from the epithelial or lepidic cell group having external world relationships.

The endothelial and mesothelial cells, connecting as they do the hylic with the lepidic group, stand in an intermediate position. They line the blood-containing and the lymph-containing spaces and body cavities, and their environment comprises the nutrient medium, blood or lymph, the activities of neighbouring and other cells, and such external influences as reach them from the outside world in the shape of food material, micro-organisms, and chemical substances contained in the blood or lymph streams.

The germ cells form another group having peculiar environmental relations. By virtue of their normal capacity for migration and their abnormal liability to prenatal displacement at different periods of their life-history they establish relations with different kinds of body cells, with body cavities, and with the outside world, and, like the somatic cells of different types among which they grow, they give rise to tumours of a special kind, the teratomata, which include also malignant and benign types.

Thus we can divide the body cells, and the blastomata which spring from them, into two large groups: those in which the external world forms an actual or potential factor in the cell environment, and those in which the environment is limited to the nutrient medium bathing the cells, and the activities of neighbouring cells and those which compose the rest of organism. The latter factor will, of course, be reversed in the two groups. In the case of the epithelial cell it will primarily consist of mesoblastic cells, and in the connective tissue group it will consist of epithelial cells or mesoblastic cells of another subtype.

In thus classifying cells and the new growths which arise from them according to their environmental relationships we must remember that only the ordinary environmental factors normal to the cell in each case are thus included. Under abnormal conditions many outside influences may affect the cells of both groups, both those normally exposed to, and those normally excluded from, contact with the exterior of the body. For instance, wounds, solutions of continuity of surface of all kinds, allow contact with, and the entrance of, foreign substances in the shape of micro-organisms and their secretions. The physical stimuli of light, heat, sound, contact, X ray vibrations, radio-active substances, all these and many other agencies may, under special circumstances, bring about environmental changes and exercise an influence on all kinds of body cells.

Bearing these facts in mind, we are now in a position to examine the conditions under which, as far as they are known, the cells of both groups originate those new characters which are associated with tumour formation, malignant and benign. It is evident that any attempt to explain the cancer problem, as an adaptive reaction if it is to be satisfactory, and any attempt to classify the diversified types of blastomata, if it is to be complete, must include a detailed description of the effect of every environmental factor in relation to each normal and abnormal cell potentiality, hereditary and acquired, in the cell group in which the new characters arise. Such a proceeding is manifestly impossible. But this fact does not render useless a partial analysis of the conditions under which cancer occurs in one—for instance, the epithelial—group of cells. Such an inquiry if conducted on sound principles may throw light on the larger problem.

Following out this conception of the threefold nature of the environment of the normal epithelial cell, the cancer problem will mean for us a consideration of the conditions under which the cancer characters arise in epithelial cells in response to some change in one or all of these three environmental factors. Moreover, a careful study of the differences which distinguish the cancerous from the normal epithelial cell shows that these differences can also be grouped in relation to these same three environmental factors.

I. *Nutritional Factor.*

Let us take the nutritional factor first. The epithelial cancer cell exhibits a greater capacity for absorbing and assimilating nutrient material than the normal epithelial cell. Not only so, but in proportion as the normal cell approximates to the cancer type, in such proportion it acquires a larger cytoplasmic surface area capable of assimilating nutrient material. This fact will become apparent when we remember that the fully grown functionally active epithelial cell which covers the skin surface, or lines a mucous cavity, or gland acinus, or gland duct, presents a free cytoplasmic surface to the exterior. It is by this surface that the external secretion which it elaborates reaches the exterior. This surface is not available for the assimilation of nourishment from the blood or lymph stream. It is only available for the ingestion of such nutrient material or foreign substances as may reach the cell from the outside world.

Now in proportion as the cancer cell grows away from its normal relationship to the external world, in proportion as it tends to lead an independent existence, and to grow and multiply amongst the neighbouring mesoblastic cells, in proportion, moreover, as it ceases to pour out external secretion and to carry on normal functions, in such proportion it ceases to exhibit the normal differentiation of cytoplasmic substance into absorbing and secreting surfaces, and develops assimilative and absorbing capacities over its whole cell surface. Moreover, as we should expect, this retrogressive change is most marked in the peripherally placed cells of primary and the cells of secondary growths.

This disturbance of the normal relationship between secreting and absorbing surfaces is characteristic of cancer of the epithelial type, but, as we shall see later, it is not characteristic of cancer of the connective-tissue type. This is probably due to the fact that the normal connective-tissue cell has no external world factor in its environment, consequently the blastomata which originate from these cells do not exhibit changes in reference to it, while coincidently with this distinction we find, also, that external stimuli are more closely associated with the origin of cancer than with the origin of sarcoma.

It is interesting to note that cancers of the breast of the colloid type present only a slight degree of malignancy, and the question arises whether the low degree of malignancy may not be associated with the retention on the part of the epithelial cells which form such growths of some capacity of forming an external secretion which, under the conditions of retention present, brings about the degeneration of the cells.

But whatever may be the nature of the secretory change which distinguishes the cancer from the normal epithelial cell, it is certain that a greatly increased capacity for vegetative growth is one of the distinguishing features of the cancer cell. Vegetative growth means increased assimilation of nourishment, and this in the large epithelial cancer cell means increase in area of cytoplasmic surface capable of assimilation. Moreover, the rapidly recurring cell division characteristic of the cancer cell is closely associated with this recurring alteration of relationship between bulk of cell substance and area of assimilating surface.

There are certain facts which suggest that this increased assimilative capacity in the cancer cell is a further development of a capacity possessed in lesser degree by the normal epithelial cell. Thus, Fischer found that the subcutaneous injection of Scharlach R in olive oil beneath the corium of the rabbit's ear stimulated the epithelial cells of the epidermis, and produced in them a downward growth in the direction of the substance so injected. This experiment demonstrates the influence of an environmental change of a nutritional kind in initiating an adaptive response on the part of epithelial cells exposed to it. In this case the chemiotactic capacity displayed lies within the normal limits of epithelial cell potentiality, while in the case of the cancer cell it extends beyond these limits.

II. *Neighbouring Cell Factor.*

We must now consider the second factor in the environment of the epithelial cell: the physical and chemical activities of the neighbouring cells and of the cells which compose the organism. In response to this "other cell" influence the epithelial cancer cell exhibits capacities of an adaptive kind, of a kind which favours its own vegetative growth and cell division at the expense of the growth and functional activity of the neighbouring cells of different type. The aim (if we may so express it) of the epithelial cancer cell is to stimulate the surrounding mesoblastic cells to a reactionary growth, sufficiently active to provide the necessary vascular support, but not so active or so fully organised as to threaten by fibrous encapsulation the nutrition of the cancer cells. This growth relationship between cell-groups of different structural and functional types (which in normal

development is so delicately balanced) is disturbed by the great vegetative activity of the cancer cell.

As I suggested[2] in 1886, the capsule of any glandular epithelial organ may be regarded as the expression of a reactionary growth on the part of mesoblastic cells to the encroachments made upon them by the growth of cells or cell-groups of a different germ layer origin. The growth limit of any glandular organ is determined, within certain hereditary limits, by the opposition offered by neighbouring mesoblastic cells to the growth of the epithelial cells which compose the organ. The capsule is the result of this adaptive reaction on the part of the mesoblast cells, and the exact stage in ontological development at which a supporting and nourishing stroma becomes a limiting fibrous capsule is a matter of mutual adjustment between the hereditary capacity of epithelial cell growth and division, and the hereditary capacity of connective-tissue cell growth and division. It is only in some such process of mutual adjustment between the activities of cell-groups of different types that we can conceive of the orderly development of the organs and tissues of the multicellular organism as rendered possible.

We may extend this conception of the relationship between supporting stroma and enveloping capsule to the problem of the growth of neoplasms, malignant and benign. The growth of a benign tumour of the lepidic and hylic type is limited by a fibrous investment of connective-tissue growth analogous to the capsule of a normal organ. It is formed by the surrounding cells of different type or sub-type. In this case, also, the stroma, which serves as a support and nourishing medium for the cells of the tumour, becomes at its surface a more fully developed fibrous capsule. The cells of the definitely benign growth exercise the activities of normal tissue cells of corresponding type towards the surrounding mesoblast cells, and the reaction made by the mesoblast cells resembles that made to normal tissue cells.

It is very different with the cells of the malignant growth. The balance of mutual growth resistance has been disturbed. Having lost the capacity for normal cell division, conformable with the exercise of normal function, and the interests of the surrounding tissues and the body as a whole, the cancer cell has gained power to undergo cell division irrespective of the interests of the surrounding tissues and the body as a whole, and conformable only with the fullest exercise of its own vegetative activity. And this adaptive process requires the exercise of a very delicate influence on the part of a cancer cell over the growth activities of the surrounding mesoblast cells. Stimulation above or below the right level results in the development of a limiting and protective capsule on the one hand, or an inadequate nutritive stroma formation on the other. Further, the exercise of this specific influence by the cancer cell induces in the mesoblast cells abnormal growth along the same direction as that in which the cancer cell has itself varied away from the normal epithelial cell. And this result is brought about probably by a bio-chemical rather than by any sperm-like influence on the part of the cancer cell.

The process of stroma formation is a lowly organised phase of the same process of cell division and cell organisation by which, when carried to a higher level of tissue development, the mesoblast cells are enabled to resist the encroaching growth of the cancer cells. Thus Ehrlich and Bashford have shown that under certain conditions of repeated transplantation, the epithelial cells of mouse cancer may evolve a capacity to influence the reactionary growth of the mesoblast cells and reduce it to even a lower level of tissue development. These observers have found that under such conditions the portion of mammary cancer so transplanted may induce in the connective tissue in which it is embedded a low-grade growth indistinguishable histologically from sarcoma. These facts confirm the suggestion that the capacity of the epithelial cancer cell to influence the growth of mesoblastic cells in abnormal directions is an excess variation of a capacity normally possessed in a lesser degree by epithelial cells.

III. *External World Factor.*

We may now consider the third or external world factor in the epithelial cell environment, and try to ascertain in what way, in regard to it, the cancer cell has varied away from the normal epithelial cell.

The two chief adaptations exhibited by epithelial and gland cells in relation to external world stimuli are (1) elaboration of external secretions and (2) deposition of formed material of a protective kind. The epithelial cancer cell shows a diminished capacity for the elaboration and discharge of the secretions formed by normal cells of the type to which it belongs. This peculiarity, as in the case of other cancer characters, is a relative change. Thus the cells of malignant adenomata secrete some mucus. Müller long ago detected casein in the cells of mammary cancer; Waring has found pepsin in gastric, and trypsin in pancreatic cancer tumours. Other observers have detected bile in the metastatic growths formed by liver cancer.

Allowing, however, for these observations, the fact remains that the external secretions elaborated by cancer cells differ quantitatively and qualitatively from the secretions formed by normal epithelial cells of a corresponding type. In fact, the degree to which the cancer cell has lost the power to elaborate normal external secretion is a direct index of its malignancy, and with this decreased capacity in one direction goes increased capacity for vegetative growth, and the point that I particularly wish to emphasise is the desirability of considering this peculiar loss of functional capacity in relation with the special factor in the environment (the external stimuli) with which it is under normal conditions associated.

But besides elaborating external secretions, epithelial surface cells react to the influences of the external world in another way, and that is by the formation and deposition, either within the limits of the growing cell or outside these limits, of material of a protective kind. Thus the surface cells of epidermal tissues undergo keratinous change. And other examples of cytoplasmic differentiation of a similar kind could be mentioned. Now the cells of a squamous-celled epithelioma do not present the same degree of keratinisation as that shown by normal squamous epithelial cells. This is especially noticeable in the cells composing the secondary deposits formed by squamous epithelioma. Neither do such cells present the regular cogwheel interdigitations found in normal cells. It would be interesting to know whether cilia are present in cancer cells arising in ciliated epithelium, and, if so, whether they are found in the cells forming the metastatic deposits found in such tumours.

We may recapitulate this enumeration of the adaptive characters shown by epithelial cancer cells to the three primary factors of epithelial cell environment by saying that the characters associated with the cancer habit indicate diminished or defective adaptation to the external world factor, and increased adaptation to the nutritional factor, and to the activities of other cells. A fully developed and functionally active epithelial cell flourishes with one cell surface attached to the underlying cells and bathed with nutrient lymph, while the other surface is free and exposed to external influences, whereas the epithelial cancer cell grows best with all its surfaces brought into relationship with the activities of neighbouring cells, and bathed in nutrient material of a lymph-like nature. Such, then, is the cancer process viewed as an adaptive response on the part of epithelial cancer cells.

Effect of Bodily Conditions.

Let us now consider epithelial cancer from the standpoint of the individual organism and consider the bodily conditions which are supposed to favour its origin.

Age of individual.—Individual age on closer analysis means relative senility of the different epithelial tissues of different types in the same individual. Cancer tends to originate in epithelial tissues that are growing old. But age means physiologically, number of previous generations passed through by the cells composing the particular tissue in question. And tissues which are nearing, or have reached, the hereditary limit of capacity for normal function and normal metabolism have, as a rule, passed through a larger number of cell generations than tissues which are still active functionally.

The question, therefore, is, What are the external or internal influences (apart from the length of life of the individual as a whole) which tend to induce abnormally rapid cell division in, and consequently ageing of, epithelial tissues? Among such influences we must include mechanical and chemical irritation, X rays, alcohol, soot, arsenic, betel nut, tobacco, clay pipes: all these are chronic irritants. And in so far as chronic irritation acts as a predisposing

[2] Transactions of the Leicester Medical Society, 1886.

cause of epithelial cancer, it does so by disturbing the nutrition of the epithelial cell and by causing rapid cell division, and in this way by bringing about cell senility.

The same senile influence is exerted on epithelial tissue by the frequently repeated exercise under special abnormal conditions of otherwise normal physiological functions. Thus cancer is more frequent in the uterus and mammæ of women who have borne and suckled children than in women whose organs have not passed through such cycles of increased and diminished cell growth, cell division, and cell destruction. These last three processes are the three conditions which favour the occurrence of variation and selection among organisms exposed to them, and of the abnormal conditions associated with their exercise, stasis of secretion and sudden arrest of function seem to be the most important.

Joining these facts together we find that cancer characters tend to appear in epithelial tissues which are nearing, or which have reached, the hereditarily fixed limits of functional capacity—that is to say, among cells which exhibit diminished capacity for cytoplasmic function and increased capacity for nuclear division of an abnormal kind. We use the word *among*, and not in, advisedly, because there is no reason to suppose that the worn-out, senile, epithelial cells themselves become cancer cells. We must rather suppose that these worn-out cells, which are ill adapted to the changes in the environment associated with the origin of cancer, perish, and are removed, and that their place is taken by younger undifferentiated cells, and that among these younger cells some possess capacities of vegetative growth which are of great value in enabling them to survive under the altered conditions, and during the struggle for room and nourishment going on with neighbouring cells. Of these abnormal characters, diminished capacity for cytoplasmic function and increased capacity for nuclear division seem to go hand in hand. As cytoplasmic function decreases assimilation increases, and as the nucleus ceases to direct cytoplasmic activity along functional lines, it tends to be exercised in initiating rapid and disorderly cell division.

Having thus indicated some of the main features which distinguish the cancer cell from the normal epithelial cell, having associated the different bodily conditions and the external influences found during the origin of cancer with one common factor, disturbance of nutrition, we are now in a position to ask whether the conditions, under which these new cancer characters appear in cells, suggest a "variational and selectional" or a "use acquirement" origin in the case of epithelial cancer.

We wish to ascertain, in other words, whether the older epithelial cells which have been exposed to the disturbed nutrition, to the mechanical or chemical irritation, to the abnormal activities of other cells, or to abnormal influences, reaching them from the body as a whole, or to the influences, whatever they may be, which predispose to cancer, we wish to ascertain whether these cells themselves become cancer cells, or whether during the struggle for existence, room, and nourishment, the increased cell proliferation, and the destruction of cells of less vegetative capacity, variations occur among the younger generations of epithelial cells exposed to the environmental change, some of which, being more adapted to live and multiply under the new conditions, survive as cancer cells.

If we analyse the changes which occur in epithelial tissues during the so-called pre-cancerous stage, we find new characters in some only and not in all the epithelial cells exposed to the changed conditions. Cancer seems, in some cases at least, to originate in a very small cell group, or even in a single cell, as we should expect if it originates in variation and not in use acquirement. In the second place, cancer is associated with the death and removal of large numbers of epithelial cells. Destruction of epithelial cells is constantly associated with all kinds of chronic irritation of epithelial tissues—in X ray dermatitis, in ulceration of epithelial surfaces due to microbic infection, in leucoplakia of the labial, buccal, and lingual mucous membrane, induced by alcohol, tobacco, syphilis, and the clay pipe, in the erosion of the os uteri the result of septic uterine discharges, in the involutionary changes which accompany chronic inflammation of glandular organs, such, for instance, as chronic mastitis. All these changes, which make up what we know as the pre-cancerous stage, are associated with the atrophy, death, and removal of large numbers of epithelial cells.

These facts strongly suggest that the cancer character originates in the younger actively proliferating cell layer rather than in the older more highly differentiated layer of epithelial cells which constantly perish and are removed. They suggest also that the cancer character arises among these younger epithelial cells as a variation rather than as an acquirement. In this sense the cancer response is the "indirect" rather than the "direct" result of some environmental change.

Such, then, in brief outline, is our conception of the cancer process as it originates in epithelial tissues.

Cancer of the Connective-tissue Type.

We now come to the consideration of the connective-tissue or mesoblastic cell, and the blastomata which arise in connexion with it. In the first place, the mesoblastic cell only responds to two environmental factors, the nutrient medium, the blood- or lymph-stream on the one hand, and the activities of other cells, epithelial or mesoblastic, on the other.

I. *External World Factor.*

Unlike epithelial cells, the connective-tissue cell has no relationship with the outside world; consequently, it does not, as a rule, show any differentiation of cytoplasmic substance into free and attached, or assimilating and secreting surfaces. The whole cell surface is bathed by the nutrient medium. It does not elaborate any external secretion because it has no free surface from which it can discharge mucus or enzymes on to the exterior of the body.

Even when it elaborates and deposits formed and inert material, such deposition occurs for the most part symmetrically, unless the irregular incidence of the stimuli interferes and brings about a corresponding inequality of deposition. This occurs in response to the unequal environmental influences of contact, pressure, and strain, as well as chemical stimuli. Even in such circumstances, the unequal stimulus which causes the unequal response is the outcome of the activities of an internal, cellular, and not an external outside world environment.

It is true that the endothelial and mesothelial cells line tubes and cavities which contain blood and lymph, but these nutritional streams exert upon the cells the influences of a nutritional and not an outside world influence, subject, of course, to alterations in the blood and lymph due to the addition of nutritive or chemical substances which reach it from the outside world.

II. *Neighbouring Cell Factor.*

When we come to the next environmental factor, the stimuli supplied by the activities of neighbouring and other cells, we find that the mesoblastic cell is peculiarly sensitive to such influences, especially to the activities of cells of the epithelial type.

Observations made during the experimental inoculation of cancer in mice show that such inoculation in any susceptible animal is followed by three definite phases: an early phase during which successful inoculation may still be practised on the same animal, an intermediate phase during which such inoculations regularly fail, and a terminal phase in which re-inoculation is again successful, and in which auto-inoculation and metastatic deposits occur. These alternating phases of susceptibility and resistance to the growth of the epithelial cancer cell on the part of mesoblastic cells afford clear evidence of an attempt on the part of the connective tissues to form a defensive reactionary growth which is ultimately overcome by the increasing growth and activity of the cancer cells. They suggest the evolution of a capacity of adaptive response on the part of cells of both groups, the invading cancer cells on the one hand, and the invaded mesoblastic cells on the other, of the same kind but of a more specific nature and with less successful result, as that made by the phagocytes to the microbes of disease.

The fact that secondary growths are less completely limited by fibrous investment than primary growths suggests either increased malignancy on the part of cancer cells which compose these metastases or of enfeebled resistance on the part of the connective tissues which surround them. In connexion with the occurrence of metastasis it is interesting to note that the quality of the resistance made by the mesoblast cells depends on specific, racial, and hereditarily transmitted characters. It is increased by age, and it can be diminished and eventually overcome by the continued

presence and growth in the tissues of a primary cancerous tumour.

Moreover, it is possible, as Bashford has shown, to raise the stroma-compelling capacity (i.e., the virulence) of epithelial cancer cells towards the resistance-offering capacity of the connecting tissues in any race of mice by passing the grafts through a series of inoculation generations in a number of individuals of the same race. This shows that it is possible to raise the malignancy of epithelial cancer cells by cultural methods, in the same way that the virulence of any disease organism can be raised, the difference being that in the case of cancer the change effected is a specific and not a general one, as in the case of disease organisms. This fact, again, supports the variational and selectional origin of cancer cells.

The labours of Ehrlich and Bashford have further shown that under certain circumstances of repeated inoculation the mesoblastic cells respond to the foreign epithelial cancer cell by the growth of a cellular tissue of low grade development indistinguishable histologically from sarcoma—that is, from cancer of the connective tissue type. This occurrence (if the interpretation placed upon it by the above observers is a correct one) supplies evidence of the origin of cancer in mesoblastic cells as the direct result of an alteration in the activities of certain epithelial cancer cells which for the time being form the cellular environment of the mesoblastic cells. There is no record of the occurrence, at any rate in the human subject, of the reverse condition. That is to say, no one has seen the occurrence of cancer characters in the epithelial cells of any organ as the result of the growth of secondary sarcomatous deposits in such an organ.

Finally, we must remember the specific nature of the cancer response. The fact that cancer cannot be transferred by inoculation from an animal of one species to an animal of a different species, and that inoculation is frequently unsuccessful when practised on an animal of a different variety, affords strong evidence of the delicacy of the balance of tissue relationship between epithelial and connective tissue cells. For the viability of the cancer graft the little aggregate of abnormal epithelial cells depends on the attitude taken up by the mesoblastic cells of the host in regard to the graft. If these react moderately and in a specific manner and form a nutrient stroma the graft lives and grows; if they react aggressively and form a fibrous tissue the graft dies.

All these facts illustrate the peculiar sensitiveness of the mesoblastic cells to the cellular element in their environment, and the alterations which take place in this sensibility are of an adaptive kind. But the conditions of the "sarcoma response" differ from those of the "cancer response" in yet another way in regard to the cellular element in the environment.

Age Incidence.

The age incidence of the disease is different in the two cases. While epithelial cancer tends to originate in epithelial tissues that are becoming senile, it tends to thrive best in connective tissues that are young. On the contrary, connective-tissue cancer tends to originate in the connective tissues of young individuals. Sarcoma has long been regarded as a disease of infancy, childhood, and young adult age. Roger Williams has collected many observations which confirm the accuracy of this clinical inference and which also, on careful inquiry, suggest further important differences between epithelial and connective-tissue cancer from our present adaptational point of view.

If we take benign tumours of the connective-tissue-cell type we find that chondromata are frequently multiple, often bilateral, and sometimes symmetrical. The fibromata are frequently multiple, often bilateral, and, in the case of the multiple fibromata of nerves, are probably congenital in origin. Moreover, these tumours have been noticed in a considerable proportion of cases to take on a sarcomatous type of growth. Osseous tumours are notably bilateral and often symmetrical, and what is most important hereditary transmission can be demonstrated in some cases. Thus, Reclus reports the case of a man with epiphysial exostoses, whose sister and three sons also showed the same peculiarity, the sister's daughter was also affected, also her four children, and seven of the grand-children.

Non-malignant ovarian tumours of the dermoid and papillary and cystic forms are all frequently bilateral. When we consider malignant tumours of the connective-tissue-cell type we find evidence that sarcomata tend to be bilateral in a greater proportion of cases than epithelial cancer in the same organ. Thus Gross reports 1664 cases of mammary cancer in which only two were bilateral, while in 156 cases of mammary sarcoma three were bilateral. In the ovary malignant tumours are frequently bilateral, but even here ovarian sarcomata, especially the round-celled variety, tend to be bilateral in a greater degree than other malignant growths. They occur chiefly in early life. In the testes round-celled sarcoma again is the usual and more frequent form of bilateral tumour. On the other hand, teratoid and dermoid non-malignant testicular formations do not seem to be bilateral.

Of the early life renal tumours, bilateral sarcomata are the most frequent. Glioma of the retina is frequently congenital and usually double-sided, and curiously and most important as in the case of epiphysial exostoses it is often hereditary. Newton records a family of 16 persons, of whom 10 died from glioma of the retina. The pigmented choroidal sarcomata are occasionally bilateral. Myeloid sarcoma of the lower jaw is sometimes bilateral.

Putting these facts together we find that tumours of connective-tissue type are often bilateral, and sometimes symmetrical in arrangement; they are sometimes congenital and usually occur in childhood or early adult life, and they are occasionally familial or hereditary. Now bilaterality and congenital origin suggest developmental and general, rather than environmental and local influences as factors in causation; while hereditary transmission, especially in the ocular glioma cases, also points in the same direction. Just as, on the other hand, the absence of bilateral arrangement and early life origin in the case of epithelial cancer suggest a diminished influence on the part of such factors, though developmental tendencies may presumably operate even here as predisposing causes, in so far as they exert an influence on the epithelial tissues to yield to or to resist the senile change.

In the same way mechanical and chemical irritation by external agencies, which play so important a part in the causation of epithelial cancer, must be of secondary importance in the case of cancer among cells which have no external world factor in their environment. But if, on the other hand, we recall the peculiar sensitiveness of the mesoblastic cell to the life activities, physical and chemical, of the neighbouring cells we are on firmer ground. This sensitiveness to "other cell" activity seems peculiar to mesoblastic cells of certain connective-tissue types, just as sensitiveness to the secretions of micro-organisms is peculiar to the phagocyte, another specialised type of mesoblast cell. It is, indeed, possible that the supposed association between traumatism and sarcoma may really depend on a reaction on the part of the connective-tissue cells to the abnormal activities of the extravasated red and white blood cells at the site of the injury rather than on the injury done to the connective-tissue cells themselves.

Nutrient Medium.

We must not omit to consider the powerful influence exerted by the nutrient medium, the remaining factor in the mesoblastic cell environment.

Looked at biologically, this nutritional factor resolves itself into a cytological one. It becomes a question of changes in the cellular elements in the blood and lymph streams, and of changes in the secretions or excretions poured by the body cells of various types into these two streams of nutrient material. The difference in chemiotactic capacity between cancer and sarcoma cells is of much interest from this point of view, and cannot, I think, be wholly explained by a difference of primary location in the two kinds of cancer cells in regard to the lymphatic and blood channels. The epithelial cancer cell perishes in the blood stream and flourishes in the lymph stream, while the connective-tissue cancer cell flourishes in the blood stream more luxuriously than it does in the lymph stream, and this difference in relationship would seem to depend partly on a difference in sensitiveness to the activities of the endothelial cells which line the lymphatics and the capillaries respectively.

Finally, the fact that increased vegetative growth and decreased functional activity, the two fundamental characteristics of malignancy, are present in both types of cancer,

not only confirms the suggestion that the cancer process is an adaptive response in both cases, but it also suggests that the particular environmental phase to which the cells are reacting, and to which, so to speak, they are trying to become adapted, has this feature in common in the two types—namely, that it is an environment which favours vegetative activity and does not favour functional activity. While the further facts—namely, the slender association of mesoblastic cells with an external environmental factor, the slight influence of external stimuli in the causation of connective-tissue cancer, the occurrence of bilaterality, and congenital origin, and occasional hereditary influence in sarcomatous tumours—all these suggest the importance of developmental factors and nutritional influence as opposed to external stimuli in this disease.

Moreover, the absence of any keen struggle for cellular existence and of active cellular proliferation, or of extensive cellular destruction, during the pre-cancerous stages of connective-tissue cancer suggests that the conditions under which sarcoma originates are not identical with those under which cancer of epithelial type originates. And in view of the special sensitiveness of mesoblastic cells to the activities of other cells it is possible that it is in this direction that the explanation of the differences in the origin of cancer in the two cases is to be sought.

Benign Tumours.

We must now consider the blastomata which arise among cells of epithelial and mesoblastic type, and which are not characterised by malignant features.

Looked at from the standpoint of adaptational response the difference between benign and malignant tumour formation becomes a question of degree. It depends on a difference in capacity on the part of the cells which compose the tumour to live and multiply in an abnormal environment of a special kind. For instance, the cells of the epithelial adenoma of malignant type are able to live and multiply in an environment formed by cells of quite another type, exercising activities of another kind, such, for instance, as that provided by the mesoblastic cells of the lymph gland. The cells of the epithelial adenoma of the benign type, on the other hand, have not got this capacity, they can only live and multiply, and that to a limited extent, among cells and tissues of the type to which they themselves belong.

It is true that the cell character and potentiality have been so far modified as to enable these cells to grow in a more or less orderly fashion in an environment in which the external world influence has been reduced to a minimum, and that as a consequence such cells have lost much of their capacity for normal function and normal secretion. But in spite of this partial change they are quite incapable under the ordinary conditions of benignity of living and dividing in the environment provided by a lymph gland, a situation in which cancer cells can flourish.

In the same way the cells of the benign tumour of the connective-tissue type, the chondroma, the osteoma, and the fibroma, resemble the cells of the benign epithelial tumour. Under normal conditions of benign growth and homotropism they can only flourish when growing in a community formed by cells of their own type of tissue.

It is true also in the case of these benign blastomata of hylic type that the new characters acquired by the cells which compose them enable them to grow and divide in a more or less orderly fashion in an environment which is not normal, and in which the relationship which normally exists between mesoblastic tissues of different sub-types has been modified by locally acting causes such as traumatism, or more general factors such as developmental potentialities and possibly abnormal internal secretions. But they do not while remaining benignant vary beyond this point. The cells composing a fibroma or osteoma of benign type cannot live and multiply in the environment provided by the lymph gland tissue, while the cells of the malignant fibroma or osteoma can live and grow in such unusual surroundings.

Teratomata.

So also with the teratomata. The cells which give rise to a teratoma are cells possessed of certain characters analogous to those of germ cells, from which probably in some aberrant form they are directly derived. They are cells which have inherited or acquired a capacity to live and multiply and exhibit teratoid characters in surroundings and under conditions unusual in germ cell development.

We are ignorant of the causes which start such aberrant or displaced cells on a course of abnormal cell division and tumour formation, but we are probably right in regarding the whole process as a response (restricted within the limits of hereditary potentiality) on the part of such cells to the abnormal environment in which they are placed. Moreover, these teratomata, which are really blastomata arising among toti-potential cells, exhibit the same transitional characters and the same tendency to diverge into malignant and benign types as the blastomata which arise in multi- or uni-potential cells—that is, in cells of epithelial or connective-tissue type.

Chorion-epithelioma is especially interesting from this point of view. Here is a blastoma arising among uni-potential cells, of extraneous and fœtal, or rather trophoblastic, origin, which have acquired a capacity to live and multiply in situations and under conditions foreign to their normal habitat. They are no longer sensitive to the restrictions to growth of a homotropic kind imposed on such cells by the internal secretions, associated with the metabolism of the lutein ovarian tissue, or the fœtal tissues, while they have at the same time acquired increased vegetative capacity. In the one form of activity they form the benign hydatid mole, in another more active form they give rise to the extremely malignant chorion-epithelioma, and the point of interest is that between these two extremes they exhibit transitional characters, intermediate varieties, half-way steps, as it were, on the way to the more completely adapted form shown by the malignant type.

Thus, while the structural and functional differences which separate the extreme types of benign and malignant blastomata represent different degrees of adaptive capacity, on the part of the cells which compose them, to environmental change of a slight or profound character, there are tumours of an intermediate class in which the cells show transitional characters, and in which it is difficult to decide whether they should be included in the benign or the malignant group.

Surgeons are familiar with tumours which originate as benign growths, and which for many years continue to exhibit such features, but which, under the influence of certain imperfectly understood environmental stimuli, of which imperfect removal seems to be one of the most important, begin to vary away from the benign type and to exhibit a capacity for vegetative and peripheral as opposed to central growth, and which under certain conditions may vary further still, and, losing their homotropic tendencies, may originate metastatic growths. Many observers have noted that among benign tumours the chondromata are especially liable to give rise to such secondary growths; this peculiar tendency may well be associated with the peripheral mode of growth characteristic of such tumours. Kirche and others have described multiple metastases in primary fibromyoma of the uterus of originally benign type.

Benign tumours of epithelial type also give rise to secondary deposits under special conditions thus: Adami, Finley, and Russell have shown that the secondary growths derived from benign adenomata of the liver sometimes display malignant characters. There is, indeed, every reason to suppose that cells can and do escape from benign tumours just as they do from placental chorionic tissue in normal pregnancy, or just as they do constantly in the case of malignant growths, and the question of their subsequent growth and proliferation in the new situations would seem to depend on a difference in capacity between benign and malignant cells to overcome the resistance offered by the invaded tissues.

But not only do the cells of benign tumours under certain conditions exhibit this capacity to originate detached growth foci, the apparently normal cells of an organ like the liver or the thyroid may, under certain circumstances, exhibit the same tendency. The attempts at cell regeneration which accompany the process of biliary cirrhosis seem to provide the conditions favourable for the origin and growth of new liver cells capable of functioning as normal liver cells or under other conditions of forming benign adenomata, or, again, of adeno-carcinomatous tumours capable of originating metastases in other tissues.

This development of liver cells of transitional types during cirrhosis, a process characterised by cell destruction, cell proliferation, and nutritional impairment, is of especial interest in connexion with our present conception of cancer as an adaptive response, depending on variation and selection

among cells exposed to environmental change. It also serves as a connecting link between blastomatosis on the one hand and cell metaplasia and blastomatoid hypertrophy, and with regeneration of tissues and organs, and the process of repair which accompanies the healing of wounds on the other.

All such processes thus fall into line as examples of adaptive response on the part of cells of different types to different conditions. The same is true of thyroid tumours. Adenomatous growths, structurally benign, of thyroid origin have been found in the cancellous tissue of bones in various situations, displaying all the destructive and vegetative activities characteristic of malignant tumours. On the contrary, thyroid growths, undoubtedly malignant, frequently elaborate colloidal material in newly formed acini, the cells of which, though of malignant type, have retained some of the functional capacity of normal thyroid cells. Moreover, in other situations typically malignant primary tumours of considerable age and size have been encountered unaccompanied with any evidence of secondary deposit. Moreover, the malignant tumours themselves afford examples of every degree of malignity, from the slowly growing atrophic to the rapidly growing, widely disseminating virulent type.

The peculiar tendency of thyroid cells to grow in bone is another example of the delicate, and in some cases specific, nature of that relationship between tissue cells of different types of which we have already spoken, and we can only suppose that cells are under certain circumstances carried from thyroid and liver benign tumours, as they are under other circumstances carried from other organs and other tissues, such as chorionic villi, and come to rest in many situations, but only those cells survive and multiply which find themselves in tissues and in situations which provide an environment favourable for their growth.

Thus we are led to regard benign and malignant tumour formation as a process of adaptation on the part of certain cells to environmental factors which concern their welfare as cells rather than the welfare of the organism as a whole.

Cancer Character.

The change of character which distinguishes the cancer cell from the normal cell is of a retrogressive rather than a progressive kind, or rather largely retrogressive and partly progressive. It is a change comparable with that by which a parasite becomes adapted to an environment which affords diminished scope for functional activity, and increased facility for the assimilation of nourishment.

In the epithelial cancer cell, increased vegetative activity is obtained at the expense of diminished power of secretion and reaction to external stimuli. In the connective-tissue cancer cell vegetative activity is obtained at the expense of structural differentiation of the cytoplasmic substance. Thus in cancer there is a disturbance of the normal relationship between nuclear capacity for directing cytoplasmic metabolism along functional lines, and nuclear capacity for initiating cell division.

In proportion as the cytoplasm ceases to be sensitive to use stimuli and becomes increasingly sensitive to nutritional stimuli, in such proportion the nucleus ceases to direct cytoplasmic activity along functional lines useful to the organism, and directs it along lines of assimilation useful to the cell. In proportion as the cytoplasm ceases to respond to the activities of neighbouring cells, nuclear division escapes from the restrictions to too frequent cell division normally imposed on healthy cells by the activity of neighbouring cells of different type. Moreover,[3] all these increased capacities in one direction and diminished capacities in other directions which go to make up the cancer habit are qualities possessed in somewhat less degree by normal cells. Some facts noted by Ehrlich seem also to suggest that under certain circumstances the cells of a repeatedly inoculated mouse cancer may partly revert to the condition of normal cells.

All these facts strongly support the conclusion that the complex cell change that we associate with cancer has been built up by variational changes from the normal type, and that one of the stages passed through is represented by the various forms of benign growth. They suggest that the external cause of epithelial cancer is to be sought in some change in one of the three factors which make up the environment of the epithelial cell, in interaction with an internal factor, the potentiality, hereditary or acquired, of the cell exposed to the change. Whereas in cancer of the connective-tissue type, cell potentiality as affected by developmental and hereditary influences seems of more importance than environmental change.

The cancer response differs from the response made by germ cells to environmental influences in this respect. The germ cell and the cancer cell have both ceased to respond to "use," and only respond to "nutritional" stimuli; but in the cancer cell, unlike the germ cell, the change is brought about by retrogressive variation to a parasitic habit, with the loss of a capacity to undergo normal development which is retained by the germ cell.

Summary.

Thus we are led to describe blastomatosis as an adaptive response on the part of individual cells, or cell groups, to environmental change of three kinds: alteration in the stimuli which reach the cell from the outside world; alteration in nutrition; alteration in the activities of the other cells which compose the organism. This adaptive response may be "indirect," the result of variation among the cells exposed to the changed conditions accompanied by selection of an *inter*-cellular kind, or it may be "direct," and the result of a process of variation in the physiologically differentiated parts which compose the individual cell, accompanied by selection of an *intra*-cellular kind, in which case it represents a "use acquirement."

The new cell characters which so arise may be grouped in two main divisions—one characterised by typical growth including all the histological varieties of benign neoplasms from teratoma to neuroma, the other characterised by atypical growth including the malignant types. But between these two groups there are numerous tumours composed of cells presenting transitional characters. Yet, again, the second group, characterised by atypical growth, may be divided into neoplasms composed of cells of epithelial type, and neoplasms composed of cells of connective-tissue type. And between these two groups there are again connecting links, for the malignant tumours which arise from cells of primary mesoblastic and secondary epithelial origin tend to exhibit transitional characters.

Of the two factors concerned in the origin of malignant growth (cell potentiality and environmental influence) environmental influence plays a large part in the genesis of cancer, cell potentiality in the genesis of sarcoma. Of the environmental factors concerned, outside stimuli exert a much larger influence in the genesis of epithelial than of connective-tissue cancer.

Other Theories of Cancer.

In conclusion, we must now compare the account of blastomatosis here propounded with previous descriptions of tumour formation put forward by other observers.

Cohnheim and Ribbert.—"Pre-" and "post-" natal cell displacement, either alone or in association with diminished growth resistance, have been put forward by Cohnheim and Ribbert as causes of tumour formation.

Parasitic.—For some time the theory of parasitic infection held the field.

Von Hansemann.—This author suggested "anaplasia," the formation of new races of cells possessed of abnormal characters, in association with an abnormal distribution of nuclear cell material, as a cause of cancer.

Adami.—Stress has been laid by Adami and others on "habit of cell growth" and on the process of cell undifferentiation as it is present in metaplasia and normal cell division.

Oertel.—Assuming two kinds of nuclear material, one controlling function, the other vegetative activity, Oertel associates the loss of functional activity characteristic of cancer cells with the loss of the former kind of nuclear material during the irregular cell mitoses which accompany malignant growth.

Marchand.—Attention has been drawn by Marchand to the marked difference in potentiality between the normal embryonic cell and the embryonic cell of neoplasmic growth, which must be taken into account in any attempt to explain blastomatosis as a return on the part of certain body cells to embryonic characters.

Hauser.—From a minute examination of the changes shown by the epithelial cells of intestinal new growths Hauser put forward in 1890 the suggestion that the cells of new growths are the descendants of some single cell which, during the course of ontogenetic development, has "mutated"

[3] Gould, Bradshaw Lecture, THE LANCET, Dec. 10th, 1910, p. 1665.

or varied away from the normal character, and has given rise to cell descendants in which these new characters persist, and among which vegetative activity is one of the most important. He also associated this mutational change with excess of cell nutrition.

Adami.—Dissatisfied with any attempt to explain the origin of the new characters found in neoplastic cells by chance variation or mutation, Adami would regard such mutational change as a direct response on the part of such cells to environmental influences. Believing, further, that no one environmental stimulus is responsible for the whole cell change, Adami considers that a number of different influences may combine to cause the cancer change. Among these he enumerates the influence of cell displacement, chronic inflammation, irritation, mechanical or microbic in origin, cell senescence, impaired cell nutrition leading to cell proliferation, in association with preceding changes in the underlying connective tissues in the case of some epithelial cancers, while among subsidiary influences he mentions diminished external growth resistance and altered cell secretion.

H. Ross.—More recently H. Ross, impressed by the powerful influence exercised by the products of cell death in association with certain chemical substances of an alkaloidal nature, in initiating cell division in leucocytes and lymphocytes and some other cells, has suggested that the rapidly recurring division of cancer cells may be associated with a like cause.

Such are some of the many and various theories which have been put forward at different times to explain the origin of tumour formation, and incidentally the origin of cancer.

The present contribution makes no attempt to put forward any new explanation of the cause of cancer. It must rather be regarded as an attempt to consider the cancer problem from a wider biological standpoint by directing attention to the adaptational nature of the new characters acquired by cancer cells, and as an attempt to analyse some of the conditions under which benign and malignant tumour formation takes place.

The result of such an analysis goes to show that cancer, like all "new growth," must be regarded in the light of a response of an adaptive kind on the part of certain cells or cell-groups of varying potentiality, to changes in their environment. It suggests that in epithelial cancer, at any rate, this response takes place under the same conditions as those which are associated with the occurence of variation and selection among other organisms when exposed to environmental change and where evolution of new characters is taking place, especially in response to changes in the external environment. And the suggestion is therefore made that blastomatosis, including cancer and certain other forms of cell multiplication, takes place under the influence of the same evolutionary factors—namely, variation and selection of the "inter-" or "intra-" cellular kind.

The old inquiry still remains. It is the ascertainment of the kind of environmental influence on the one hand, and the special factor, hereditary or acquired, in cell potentiality on the other, which are independently or conjointly responsible for initiating the process whereby the new characters arise "innately" in, or are "acquired" by, cells engaged in neoplasmic growth.

Leicester.

DIFFUSED CANCER OF THE FEMALE MAMMARY AND THORACIC INTEGUMENT ("CANCER EN CUIRASSE").

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THE clinical experience of most surgeons is that primary carcinoma of the mammary integument is not of frequent occurrence, and that the most usual site of it when it does occur is the region of the nipple and its areola. Its occurrence in this latter situation is what might be expected, seeing the rôle irritation plays in the development of malignant disease, for the nipple and the skin around it is often the seat of cracks and fissures that are not always easy to heal and that are sometimes submitted to somewhat drastic measures of treatment. Should primary cancer of the nipple show itself it may be in the form of a squamous-celled epithelioma, or of a glandular carcinoma, originating in the epithelium (1) of the sebaceous glands or (2) of the galactophorous ducts. It is in connexion with cancerous changes in the duct epithelium that Paget's disease is a recognised factor. Commencing as an eczematous condition of the nipple and areola of a purely inflammatory nature, it in time brings about in the epithelium of the ducts alterations which spread to the deeper parts of the breast, with the result that we have the acini becoming distended with proliferating epithelium and true carcinoma mammæ is developed.

There is, however, another form of cancer of the mammary integument which is seen from time to time and is characterised by a dense unyielding leather-like state of the skin of the thorax. Although referred to by Howard of the Middlesex Hospital in 1792, attention to this class of case was specially drawn by Velpeau in 1838, who described it under the name of "ligneous cancer" in plates, or *diffused* over the mammary integument, and he termed it "cancer en cuirasse." He stated that he had often met with it, and he emphasised as its characteristic the brawny (*ligneuse*) change present in the skin. He regarded the cases as illustrative of the wide area that a carcinoma may involve by continuous spread from a central focus. Some cases have been published that have been regarded as primary examples of this condition, but they are very few in number and are by no means conclusive. As a rule, the affection is secondary, and either accompanies carcinoma of the mamma or makes its appearance after the removal of a breast for malignant disease. At the Glasgow Cancer Hospital I have met with four such cases, the first one, shown in Fig. 1, being admitted on March 25th, 1895. It was of a secondary nature and was of three months' duration, having shown itself nine months after the removal of the left breast for a cancerous growth. The illustration (Fig. 1)

FIG. 1.

Typical "cancer en cuirasse."

shows the extensive involvement of the mammary integument on the left side and its extension to the right breast, which was tense and tender and was entirely occupied by a firm round swelling, reddish all over the surface, with some œdema in the surrounding tissues. Part of the cancerous area on the left side of the thorax had ulcerated, and there was present that marked œdema of the upper extremity which is such a constant and important feature of this affection. There was also present some fluid in the left pleura. The progress of the case was rapid. The notes say that the

patient became more oppressed in breathing and more cyanosed, dying on May 6th, about six weeks after admission.

As already stated, Velpeau regarded these cases as ones of *cancer of the mammary integument*, and as illustrative of the wide area that a carcinoma may involve by continuous spread from a central focus, and this has been the generally accepted view of them ever since. Of late years this view has been called in question by Handley, who states on page 147 of his work on "Cancer of the Breast and its Operative Treatment" that the prevalent idea that "cancer en cuirasse" is due to the spread of the disease along the deep cutaneous plexus of lymphatics is a belief which appears to be quite erroneous, and on page 149 he gives his view of the condition as follows:—

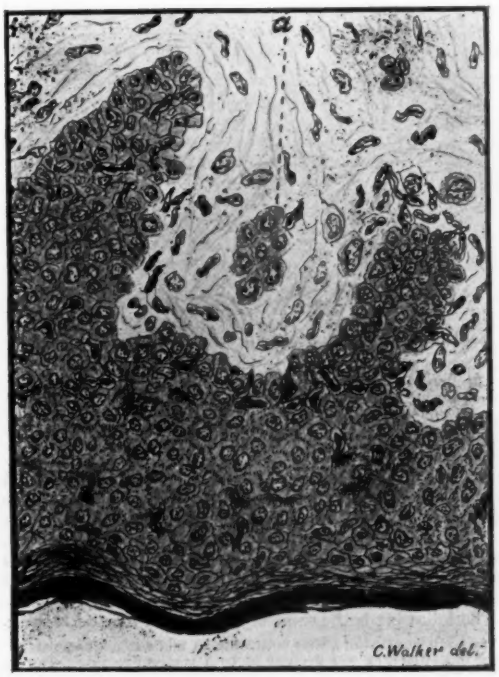
> The fact is that "cancer en cuirasse," so far as it concerns the skin, is in its earlier stages essentially a non-cancerous condition, identical with the pachydermia which is seen in elephantiasis arabum, and in some cases of long-standing eczema, dependent on the same cause, obstruction to the return of lymph from the skin. Later on it is usually complicated by nodular invasion of the skin. The swelling of the arm in breast cancer on the affected side with brawny thickening of the integuments, is a less marked example of a very similar condition. Here it has never been suggested that the skin of the arm is infiltrated by cancer.

In view of this divided opinion I think the following case is of interest and importance, as it throws some light on the exact nature of this condition termed "cancer en cuirasse."

The patient, a single woman, aged 63 years, was admitted to the Glasgow Cancer Hospital on Oct. 21st, 1910, suffering from inoperable carcinoma of the right mamma. The history she gave was that she was a shawl-twiner by occupation and had always enjoyed good health until her present illness, which began about three years previously with pain and uneasiness in the right breast. She had recently got much worse. She did not consult a medical man until July, 1910, when she was advised to obtain hospital advice and treatment. This she did, and was admitted to an infirmary. Her case was not considered suitable for operation and she underwent a course of X ray treatment without benefit. The hospital report states that on her admission on August 1st, 1910, there was a hard swelling in the right breast about the size of a cocoa-nut, moveable over the underlying tissues, but fixed in the breast substance. The skin over it was adherent and the nipple retracted, but no glandular masses were felt in the axilla. The lungs were normal. On August 4th applications of the X rays were begun and continued daily. On Sept. 4th it was noted that the skin had become affected and on the 18th that it was extensively involved, the breast tumour, however, being smaller. Later, swelling under the right arm showed itself, and the arm and hand became swollen. On Oct. 8th the patient went home.

The patient's condition when she came to the Glasgow Cancer Hospital was a very distressing one. The right arm was swollen and brawny except on the dorsum of the hand, where the swelling was puffy and softer. The right breast and the right axilla were the seat of superficial ulceration, and the right nipple was replaced by a sloughing mass. The skin of the front of the thorax on each side was dense, unyielding, and leathery, and both mammæ, especially the right one, were hard and firm and fixed to the chest wall. Perhaps, however, the most striking feature in the case was the red erythematous tint of the skin of the anterior thoracic wall, of the right shoulder as far up as the root of the neck, and of the front of the right arm down to the elbow. In some parts, as over the sternal and right clavicular region, this redness was replaced by a livid and almost ecchymosed condition of the skin. All over the erythematous region, and especially on the anterior aspect of the thorax, were numerous vesicles and bullæ containing fluid of a purplish colour. On the surface of the right mamma the bullæ had burst and the mammary integument was in places covered by a soft, yellowish sero-purulent discharge. Above the left mamma some nodules were to be felt extending in the direction of the left shoulder, but there was an absence of nodularity in the affected skin of the right side, and generally it was smooth in character. On the right side of the chest the disease was sharply defined in front by the costal margin, and on the left side it did not reach so low, being limited by a line drawn from the ensiform cartilage along the base of the left mamma to the anterior border of the axilla. The patient complained of a constricted feeling around the chest, and she had great difficulty in moving herself in bed. After admission the section of a bit of skin taken from the extending edge of the redness and examined in the research department of the hospital showed the cells of the deeper layers of the rete Malpighii burrowing amongst the subcutis almost as in the growing edge of an advancing epithelioma, while here and there several separated groups of cancer cells were seen scattered in the subcutis suggesting invasion of the lymphatics of the skin and the involvement of the cutis in the cancerous process. This state of matters is shown in Fig. 2.

FIG. 2.



Section of skin from extending edge of redness, showing, *a*, a separated group of cancer cells in the subcutis.

FIG. 3.

Shows the deeper layers of the subcutis with cells of a spheroidal type, and they exhibit a marked alveolar arrangement with abundant fibrous stroma and present the typical aspect of a scirrhus cancer.

The after-progress of the case was marked by considerable extension of the redness and induration of the skin both on the right and left sides of the chest, and subsequently it extended from the right shoulder to the scapular region as far down as the level of the tenth dorsal vertebra. Several large areas of ulceration formed on the chest walls in the erythematous part of the skin, and here and there were present brownish crusts, which revealed reddened and

FIG. 4.

Section of the skin through the margin of one of the bullæ, showing that while the surface layer of horny epithelium remained, being somewhat thickened, the rest of the integumentary elements were replaced by cancerous cells, among which was a certain amount of connective tissue.

oozing surfaces when removed. With the increasing density of the skin the feeling of constriction of the thorax increased and the patient could not move unassisted. Under the pain and discomfort the general health suffered and sleep could only be obtained by opiates. There was slight fever with a dry and tremulous tongue and quiet muttering delirium. The patient gradually sank and died on Dec. 2nd, 1910.

The following is the summary of the post-mortem report:—

The body was that of a well-built woman and was not emaciated. A large ulcerated area was present in both pectoral regions. The right breast was greatly involved and the ulcerating process extended to the edges of the ribs and the costal cartilages of the right side, to the right axilla, and to the scapular region behind. The right axilla showed also patches of ecchymosis. The ulceration did not involve the whole of the left pectoral region but only that portion nearest to the sternum.

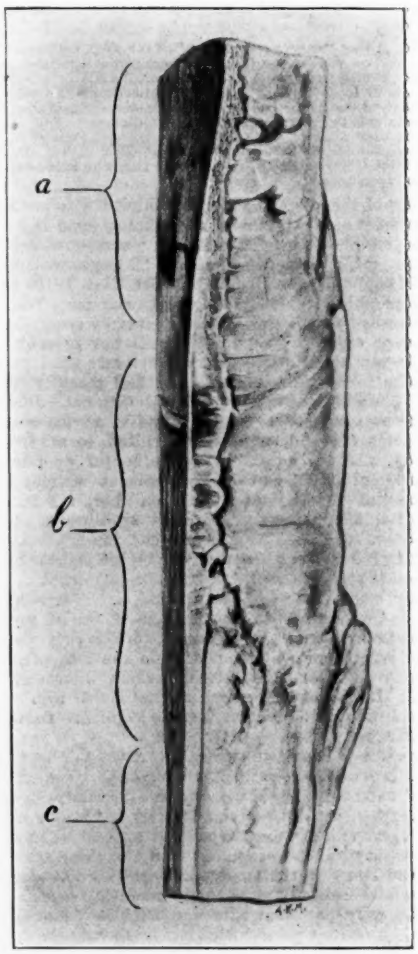
In the thorax the heart was found to be slightly hypertrophied, and there was thickening of the pericardium. Near the apex of that organ were several "soldier's" spots. The heart wall was slightly fatty, and several small atheromatous patches were present in the aorta. The right lung was very adherent to the costal pleura and the pulmonary pleura was distinctly thickened near the apical region. The left lung was only slightly adherent to the costal pleura. There was some hypostatic congestion of the lungs, but no carcinomatous nodules were present on the surface or in the substance of the lungs. There was no cancerous injection at the root of the lungs. Beneath the right breast the fatty tissue was pigmented and of a deep yellow tinge, and on the right side the skin, subcutaneous and muscular tissues were adherent to the ribs and sternum beneath. The right parietal pleura was studded with areas of cancerous infiltration, and the right lung, as already stated, was markedly adherent to the chest wall and was separated with difficulty. The right pectoral muscle was infiltrated with the growth and the interfascial septa were markedly developed and showed distinct cancerous infiltration.

In the abdomen the liver was congested and slightly enlarged and there was some fatty infiltration. No cancer nodules were to be seen anywhere on its surface or in its substance. The kidneys were congested and showed a condition of sub-acute nephritis. The suprarenals were smaller than usual, but were otherwise healthy. There was some congestion of the spleen, but it was otherwise quite normal and showed no carcinomatous nodules on its surface, or in its substance. The uterus was bicornuate and the ovaries atrophied.

From the point of the chest on the right side a long strip of skin and subcutaneous tissues was taken over the ulcerated area, but below, extending towards the abdomen into the normal skin (Fig. 5). This section, viewed from the side, shows at (*a*) the blackened necrotic and thinned skin and at (*c*) skin of normal appearance and thickness. At (*b*), between these two extremes there was an area of active cancerous growth in the cutis. A section of this area at the advancing margin of the skin lesion showed under the microscope a close permeation of the lymphatics of the cutis by single strands and small groups of cancer cells, and associated with this a well-marked thickening of the cutis. The epithelial covering of the skin in this area showed very distinct desquamation and the papillæ of the cutis were fibrosed and œdematous. There was, however, more than this skin lesion. In addition the subcutaneous tissue underlying the area displayed abundant strands of carcinoma spreading in the lymphatics and also permeating the fat. Similar examination of the dark ulcerated skin at (*a*) lying central to the advancing margin showed necrosis of the cutis and no nuclear staining of cancer cells or normal tissue cells.

With the foregoing clinical and pathological facts before us we are now in a position to consider the exact nature of this case, and if it comes under the category of "cancer en cuirasse" to express an opinion as to whether or not the condition arises from dissemination of the cancer cells through the lymphatic vessels of the cutis vera, or is simply, as Handley suggests, "a non-cancerous condition identical with the pachydermia which is seen in elephantiasis arabum, and in some cases of long-standing eczema, dependent on the same cause, obstruction to the return of lymph from the skin."

FIG. 5.



From its clinical manifestations I have no hesitation in placing the case in the category of those described by Velpeau under the group of "cancer en cuirasse." The only disturbing element entering into it, and that could be in any way appealed to as altering its ordinary course, is the treatment for about three weeks by the X rays. To this fact, however, I do not consider any special weight should be attached, as the condition of the thoracic wall on the patient's admission to the Glasgow Cancer Hospital was not that of an X ray dermatitis, and the subsequent microscopic examination of the skin supported that view. Going, then, on the assumption that the case was one of Velpeau's "cancer en cuirasse," it is necessary to study it a little in detail to clear up the exact pathological lesion present. From the patient's own account of her illness it is not very evident when the tumour in the right mamma showed itself. It may or may not have been present during the two or three years when she suffered from sensations in the breast of a vague and uneasy nature, yet not sufficient to necessitate

her seeking medical advice. The first distinct proof of the existence of the tumour is in August, 1910, when she was advised to enter hospital, for the infirmary report says that there was then found in the right breast a hard swelling of the size of a cocoanut. It is also clear from the report that at this time the skin of the thorax was not affected, as it is distinctly stated that it was Sept. 4th when it began to be involved. These facts show that the integumentary lesion was not a primary one but was associated with a pre-existing malignant tumour of the right breast. Nothing is said in the report as to any microscopic examination of the skin in September, 1910, but we know that within eight weeks of that time the section of a bit of skin taken from the extending edge of the thoracic redness revealed a cancerous condition of the integument (see Figs. 2 and 3), a state of matters not in accordance with Handley's view that cancer en cuirasse, "so far as it concerns the skin, is in its earlier stages essentially a non-cancerous condition." Were this so, the section from the extending edge of the redness should not have contained the "several separated groups of cancer cells seen scattered in the subcutis suggesting invasion of the lymphatics of the skin and the involvement of the cutis in the cancerous process." This suggested invasion of the lymphatics received full confirmation by the section of skin taken after death, which showed, as stated, "a close permeation of the lymphatics of the cutis by single strands and small groups of cancer cells, and associated with this a well-marked thickening of the cutis."

Before considering further these divergent opinions as to the exact nature of the condition present in cancerous pachydermia or so-called "cancer en cuirasse" it is necessary, in view of the part played by the lymphatic system in the dissemination of cancer, to draw attention to the distribution of (1) the cutaneous lymphatics of the thorax, and (2) of the lymphatics of the breast.

1. *The Cutaneous Lymphatics of the Thorax.*

The best grouping of these is that of Poirier and Cuneo, who divide them into three territories—viz., anterior, lateral, and posterior, an arrangement which permits of the clearer classification of the collecting trunks of the thoracic cutaneous network of lymphatics.

(*a*) *Anterior territory.*—This area extends from the median line to the neighbourhood of the anterior axillary line, *but it does not include the integuments which cover the centre portion of the mamma.* Its collecting trunks appear in the region of the middle line and run towards the axilla, some passing above and some below the breast. All of these anterior trunks terminate in the thoracic group of axillary glands and they represent the principal lymphatic channel of the anterior region of the thorax. This anterior territory, however, possesses *three accessory lymphatic channels* which must not be lost sight of, as they are of considerable importance. They are known as (1) the subclavian, (2) the contra-lateral, and (3) the internal mammary. The *subclavian* consists of some trunks which arise below the clavicle, run upwards and outwards over that bone, and end in the supra-clavicular glands. The *contra-lateral channel* owes its existence to the fact that there is a continuity between the networks of origin of the lymphatics on either side of the middle line of the chest. In addition to this there is a small percentage of cases where there is a decussation of the collecting trunks across the middle line. Lastly, the *internal mammary* channel represents two or three collecting trunks which perforate the anterior extremities of the intercostal spaces and, closely accompanying the perforating branches of the internal mammary artery, reach the retro-sternal glands. We have then in this anterior territory one principal homolateral axillary channel and three accessory ones.

(*b*) *Lateral territory.*—This area is drained by five or six collecting trunks which ascend vertically, perforate the axillary aponeurosis, and end, as do the anterior trunks, in the thoracic group of axillary glands.

(*c*) *Posterior territory.*—The drainage of this area is carried on by 10 or 12 collecting trunks, of which the lowest appear a little below the inferior border of the thorax. These, as well as the middle and upper ones, converge towards the axilla and terminate in the scapular group of axillary glands. Such is the general distribution of the cutaneous lymphatics of the thorax, but it is necessary to have a clear understanding as to their exact mode of arrangement in the skin, as upon this depends the mode of spread of cancer in that structure. The most recent view is that the lymphatics of the skin originate in the papillæ and form by intercommunication in the superficial layer of the dermis what is termed the *subpapillary plexus* (*a*). Underneath it, and lying some distance from it, upon or just over the deep fascia of the body, is the main parietal lymphatic plexus known as the *fascial plexus* (*c*), the two communicating with one another by vessels which start from the subpapillary plexus and dip down vertically to join directly the fascial plexus (*b*). (See Fig. 6.)

FIG. 6.

Diagram from Handley's Cancer of the Breast, p. 28, to show that subcutaneous nodules do not necessarily arise from the extension of growth along the skin.

This arrangement is not, however, universally accepted. According to others the connexion between the subpapillary and fascial plexuses is not quite so direct as given above. They hold that the vertical vessels do not run direct into the fascial plexus, but anastomose amongst themselves and form on the deep aspect of the skin an intermediate plexus which has been named by Arnold *the deep cutaneous plexus.* Of its existence Handley says he has never found any evidence in his work, and the consensus of opinion seems to be that in the skin we have only the subpapillary plexus, and that its communication with the deep fascial plexus is by the definite vertical tributaries.

2. *The Lymphatics of the Breast.*

There are two groups of these—viz., (*a*) those of the skin over the mamma, and (*b*) those of the mammary gland itself.

(*a*) *The mammary cutaneous lymphatics.*—These have a different arrangement at the periphery of the breast from that which exists in the region of the areola and nipple. Most of the former terminate in the collecting trunks of the homolateral axillary channel which collects the lymph from the anterior thoracic cutaneous territory and pours it into the thoracic groups of axillary glands, but a few of the lymphatics arising from the skin over the internal surface of the mamma may pass direct to the axillary glands of the opposite side. On the other hand, the central cutaneous lymphatics of the nipple and areola have quite a different course. They first form a superficial network with extremely fine meshes, arranged in several planes, from which numerous trunklets pass directly into the deeper plexus formed by larger trunks, known as the *subareolar plexus of Sappey*, and in which the majority of trunks coming from the mammary gland itself also terminate. We have thus in connexion with the mammary integument two sets of lymphatics quite distinct, although in close juxtaposition.

(*b*) *The lymphatics of the mammary gland.*—The majority of the lymphatics of the breast itself form a network about the lobules and milk-ducts and pass by means of collecting trunks into the subareolar plexus of Sappey, or, as Handley calls it, the subpapillary plexus. A few, however, of the intramammary lymphatics pass direct to the subclavian and supraclavicular glands, while others pass into the *deep fascial plexus* in the loose retromammary tissue. The mammary lymphatics that end in the subareolar plexus of Sappey pass to the axillary glands by means of two large trunks which leave the plexus one on its internal, the other on its external part. The internal trunk passes from the internal side of the gland around the lower border of the subareolar plexus, and runs along the lower border of the pectoralis major to the axilla. The external trunk leaves the external side of the gland and goes direct to the axilla. These two main trunks perforate the axillary aponeurosis and terminate in one or two of the glands placed on the inner wall of the axilla on the third digitation of the serratus magnus. In the case of the intramammary lymphatics that enter the deep fascial plexus, they also empty into the axillary glands, for this deep fascial plexus has certain catchment areas from which special trunk lymphatics spring, and those that receive the mammary lymphatics terminate in the axillary glands. In addition to this main lymphatic channel the mamma has three accessory channels known as (1) the axillary, (2) the subclavian, and (3) the internal

mammary. The first one is not very constant, but when present comes from the lower part of the gland and passes directly to the axilla. The subclavian is represented by a trunk which comes from the posterior surface of the breast, penetrates the pectoralis major, and passing between the two pectoral muscles ends in the subclavian glands. Lastly, the internal mammary comprises the lymphatics coming from the inner part of the mamma. They follow the perforating branches of the internal mammary artery and reach the retrosternal glands, just as do some of the cutaneous lymphatics.

Seeing that a mammary cancer must be regarded as co-extensive with the lymphatics that drain it, we have three groups of these vessels in connexion with the breast—viz., (1) the cutaneous, (2) the areolar, and (3) the glandular lymphatics, by any of which we may have both local and general dissemination taking place. As regards the general dissemination, it was, until recently, thought that it occurred chiefly by the blood stream, but Handley's work has made it more probable that this is not the case, and that the most frequent channel is the lymphatic system.

To understand how cancer spreads locally and generally in the body it is necessary to bear in mind the conditions that give rise to this characteristic of the disease. There are two ways in which a carcinomatous growth extends. The first one is by "*infiltration*," which is a local process and consists of a gradual pressure destruction of the healthy surrounding tissue. The other one is by the passage of cancer cells along the *lymph channels connected with the spot where the cancerous growth has commenced*. Having gained access to these channels, the cancer cells then pass to the lymphatic glands connected with these lymphatics, and in this way there is laid the beginnings of a mode of dissemination of the cancerous growth throughout the body, which gives to carcinoma its most fatal characteristic. The possibility of this spread of the disease is due to the fact that there is a continuity between the whole of the lymphatic system of the body, and thus there can take place the passage of cancer cells to distant parts of it. The plan on which this continuity is arranged has been specially studied by Handley, whose general idea of the lymphatic system is that it is a vast horizontal network of fine vessels lying on the deep fascia. Into it are poured by numerous fine vertical tributaries, first the lymph from the skin and its appendages, such as the mamma, and, secondly, on its deep aspect the lymph of the muscular and periosteal lymphatics. In this way the entire body is invested by a network of intercommunicating channels. It is not necessary to go here into further details about this general lymphatic investment and the six drainage areas into which Handley divides it. What should be remembered is that six sets of lymphatic trunks convey the lymph to the (1) cervical, (2) axillary, and (3) inguinal glands, each of these groups of glands draining different areas, and that the different areas, though distinct, are not isolated from one another, for between them are lines or zones in which it is true there are no trunk lymphatics, but there are present narrow and fine tortuous vessels in which the lymph stream is very slow and at its feeblest and through which only very fine particles can pass, and that are capable of being opened up, under certain conditions, so as to create channels of communication, just as happens in the establishment of the collateral circulation after ligature of a main artery.

To explain the passage of cancer cells between areas thus shut off to some extent from one another Handley calls in the assistance of the proliferating power of the spreading tumour cells, and considers that it is by "centrifugal lymphatic permeation" that they find their way into the fine lymphatic vessels between the areas and thus pass into adjoining areas without changing their conditions of life. I confess I have never thought this term "permeation" of cancer cells a happy one, as it does not correctly represent what takes place The word permeation implies diffusion through the tissues, just as odours permeate the air or a dye spreads itself through cloth. It suggests, in fact, passage through the pores and interstices of a substance without rupture or diplacement of parts. This is not what happens in the case of the extension of a cancerous tumour by the lymphatics. Underlying the whole process is mechanical pressure, and the term I have always used for the lymphatic spread of cancer has been "*pressure dissemination*." The correctness of this view is apparent if we consider for a moment what happens in connexion with a cancerous growth. Cancer consists of an abnormal and unexplained growth of the cells of a part. The new cells which are formed by this irregular and inexplicable activity collect together and form a swelling or tumour as it is called. Such a local collection of cells would probably do no harm were it to be small in size and not undergo any increase, and sometimes this happens, so that a person may carry about with them for years a limited cancerous tumour and be none the worse for it. Such is not, however, the usual course of events. The cells multiply and room must be found for them, so those on the outskirts are compelled to find an outlet of escape. This they do largely by the lymph channels and it is done under pressure from the accumulating cells at the original centre of activity and at any new foci at a distance, for some of the cells forced into the lymph channels have the same proliferating power as the original ones that began the morbid process. When in the lymph channels they not only induce a small-celled infiltration which ultimately forms a new connective tissue and thus brings about a perilymphatic fibrosis, but the multiplying cells rupture the smaller lymph channels and in this way destroy the continuity of the lymph vascular system of the part affected. The spread, then, of a cancer is really a "pressure dissemination," and this is supported by the fact that relief may be obtained in another direction. Thus, the tension of the cells in the primary growth may cause ulceration in it and by this discharging surface the pent-up cells may find exit, lessening the spread along the lymph channels. In no other way can we explain certain clinical facts, such as the slowness of glandular implication in many cases of cancer of the body of the uterus. Here the disease soon sets up ulceration of the mucous membrane, and the cells finding an easy escape put no pressure on the lymph channels, so that the parametrium is not involved in these cases until a late date.

Keeping in view this principle of pressure dissemination as the determining factor in the lymphatic spread of cancer, I think it offers an explanation of what takes place in the condition of "cancer en cuirasse," and makes clear its exact pathology. What happens when a mammary carcinoma forms is this. As the activity of the disease goes on the proliferating cells have to find some means of escape. Pressed by the accumulating cells of the primary growth those at the periphery and elsewhere crowd into the lymph spaces and channels, making their way along the paths of least resistance. Various outlets are open to them, because, as already described, the lymphatics in this region are arranged in several groups—viz., the cutaneous, the subareolar plexus of Sappey, the circum-mammary, the retro-mammary, and the intra-mammary, this last being made up of the perialveolar and periductal lymphatics. All of these groups are in close touch with one another and they drain, as we saw, into the axillary glands, the supra-clavicular glands, the retro-sternal glands, the lymphatics of the opposite side, and the lymphatics of the anterior abdominal musculature. Whatever be the route first taken by the displaced cancer cells it sooner or later becomes blocked by them and also directly interrupted by their rupture of the lymph vessels. When this happens, should there be any great activity of the disease with rapid cell growth and no relief afforded by ulceration of the skin over the tumour, then other pathways are sought by the cells. So important an element in cases of mammary cancer is this question of the channels followed by the crowded-out cells that their clinical character is determined by it. Thus, if the retro-mammary lymphatics are open to the cancer cells and they follow that route, they come into touch with the deep fascial plexus which Handley has shown envelops the body, and we get widely disseminated disease which may show itself locally in the shape of multiple nodules (Fig. 7), each nodule probably marking the position of a vertical tributary between the subpapillary and deep fascial plexuses, or as distant deposits in the bones and viscera. In the same way in a case of long-standing carcinoma of the left mamma recently under my care, relief seemed given to the proliferated cancer cells mainly by the cutaneous lymphatics of the anterior abdominal musculature, nodules appearing in the skin of the abdomen as far down as the symphysis pubis, in the vulva in front, and at the anus behind, the inguinal glands being also enlarged, a condition of matters due, I consider, to the invasion under pressure of these adjacent areas by the

mammary cancer cells, all other outlets for them being closed or occupied.

In view, then, of the fact that the lymphatic spread of cancer depends on mechanical pressure exercised on the cancer cells, and that the direction in which they travel is determined by the patency or otherwise of the adjacent lymphatic passages, it is possible to offer an explanation as to what happened in this case of mammary integumentary carcinoma or cancer en cuirasse that I am recording. To begin with, everything points to the mammary tumour having existed for some time before the patient sought medical advice in July, 1910. During that time extension had probably taken place by the ordinary lymphatic channels, and it is not unfair to assume that at the time she was admitted to the infirmary the axillary, subclavian, internal mammary and retro-mammary outlets were blocked by accumulations of cells and perilymphatic fibrosis, and also interrupted by rupture of the lymphatic vessels. After admission to the hospital fresh activity in cell development evidently took place, possibly under the influence of the X rays as sometimes happens, and accommodation had to be found for these new cells. Choosing the path of less resistance they obtained it in the *subpapillary lymphatic plexus of the skin*, which was invaded by them, the tension caused by their presence setting up the red erythematous state of the skin, with its bullæ and subsequent ulceration that were such prominent features in the case when the patient entered the Glasgow Cancer Hospital. That cancer cells were present in the skin at that time the sections shown in Figs. 2 and 3 show conclusively, and as we know from the infirmary report that implication of the skin was only noticed about Sept. 4th, these sections represent a comparatively recent lesion.

Under these circumstances, I think the conclusion is allowable that we may have in cases of mammary carcinoma a cancerous invasion of the lymphatics of the skin exhibiting all the symptoms of Velpeau's "cancer en cuirasse," and that Handley's view that the ligneous hardness of the skin found in that condition is at first non-cancerous and identical with the pachydermia seen in elephantiasis arabum, and only becoming cancerous as a late event, is not tenable. Handley is no doubt right in saying that cancer infiltrates the tissues of the skin slowly and with difficulty in the vicinity of *ulcerated* primary growths, because ulceration relieves the pressure in these cases. When ulceration is not present the state of matters is different, and there comes into play forcible dissemination. Under it the cancer cells open up the lymph channels of the skin, just as the blood does the smaller arterioles in establishing the collateral circulation after ligature of a main arterial trunk, and if they happen to rupture the delicate walls of the lymphatics in the process the freed cancer cells spread very rapidly in the loose subcutaneous tissue of the skin, whether there be or be not a deep cutaneous lymphatic plexus. Taking everything into consideration, this case seems to support the older view as expressed by Erichsen and Watson Cheyne, that the condition known as "cancer en cuirasse," while occasionally arising from a fusion of numerous nodules connected with the deep fascial plexus, as might have happened with the case shown in Fig. 7, is generally the result of direct spread of the cancer cells to the lymph channels of the skin, thus emphasising the fact that in cases of mammary cancer the cutaneous lymphatics have to be reckoned with as a possible area of dissemination of the disease.

FIG. 7.

A case of disseminated malignant disease showing itself locally in the shape of multiple nodules.

Glasgow.

A CASE OF TOXÆMIA OF UNCERTAIN ORIGIN, AND ITS TREATMENT BY SEA-WATER INJECTION.

BY IVAN C. MACLEAN, M.D. LOND., &C.,

AND

L. DE C. HARSTON, F.R.C.S. EDIN., &C.

THE patient, a married woman, aged 60 years, was first seen in May, 1910, suffering from pain in the joints and muscles. She had a foul tongue, and constipation was present. Her temperature was 100° F.

Past history.—During the greater part of her life she had resided in India, but with the exception of a severe attack of dengue, there is nothing of importance to note. On her return to England some 20 years ago she seems to have entirely thrown off the effects of the fever, but suffered much from chronic dyspepsia and constipation and later on hæmorrhoids troubled her much, which were operated upon. She was strictly dieted and otherwise received appropriate treatment.

History of the present attack.—In May, 1910, she sought medical aid for pain in the joints and muscles, foul tongue, and constipation. Her temperature when first seen was

100°. The shoulders, elbows, carpal and upper vertebral and maxillary joints were chiefly affected and later the knees, and for the first four or five weeks the case looked much like one of infective arthritis. Among other things she was treated by electric light baths, but in spite of all treatment her condition rapidly became worse, emaciation increased, and there was low continuous fever; later blood and mucus were passed in the stools. She was highly tympanitic over the abdominal region. A systolic murmur at the apex which developed during the attack suggested the possibility of ulcerative endocarditis. The abdominal distension was often severe and the stools were always liquid: in fact, at this time the abdominal symptoms were far more prominent than the arthritic. Blood cultures were sterile, and the typhoid and tuberculo-opsonic reactions normal. The urine contained no albumin. Exploratory operation was suggested, but in view of the vague symptoms and absence of local physical signs it was not thought to be justified, nor was the patient in a fit state to stand an operation well.

The symptoms at this time pointed to some inflammatory infection and possibly ulceration of the bowel, chiefly in the region of the cæcum and ascending colon. There were some enlargement and tenderness of the liver. Several consultations were held, and Dr. H. P. Hawkins, Dr. H D. Rolleston, and Mr. Cyril Nitch all saw the patient. Bacillus coli autogenous vaccine was prepared and given in increasing doses every third day, having got up to 5 millions at a dose in three doses, with an increase of 2 to 3 millions each time. The result was disappointing.

Finding that in spite of all treatment the patient was losing ground rapidly, it was suggested through reading the description of "Injection of Sea-water," by Dr. R. Simons, to try the sea-water injection, and with the patient's consent the first injection was given on Sept. 9th, 1910. We began by giving 25 c.c. of sea-water (plasma marina) injected under strict aseptic precaution, in the right scapular region, but finding that it was followed by no discomfort it was subsequently increased from 25 to 50 c.c., and continued twice weekly for 30 injections. The temperature soon began to fall to normal, but at first after each injection it would fall and then rise again to 100° or thereabouts before the next injection was given. This continued for a time until it came down and remained at normal. She began to increase in weight. Sleep became natural, although up to that time it had to be induced by hypodermic injections of morphia. The improvement continued, the stools became formed and regular, appetite gradually improved, and she thoroughly enjoyed her meals, and a more liberal diet was given. The apical murmur disappeared, as did also the anæmic condition. At the end of six weeks she was for the first time able to leave her bed and sit up daily in a chair. Each week she gained on an average a little over ½ lb. in weight. Her weight before the injection was given was 5 st. 4 lb. (74 lb.). At the end of the 30 injections it was 6 st. 8 lb. (92 lb.). After each injection she described herself as feeling much stronger, and they seemed to act as a powerful tonic to her general system. Finally, six months after the beginning of the sea-water treatment, she was able to take out-door exercise and live her ordinary li'e

This is a case in which drugs and vaccine-therapy seem to have utterly failed. How sea-water acts is purely a matter of conjecture and is an interesting question, but Dr. Rolleston suggests that it would tend to increase the amount of sodium chloride and so keep a certain amount of fluid in the tissues, and therefore would counteract any factor, such as diarrhœa, which produces drying up of the tissues and inelasticity of the skin. It is the converse of the salt-free diet employed for œdema, especially of renal disease. Thus, some conditions—e.g., renal disease—are benefited by privation of sodium chloride, whilst others—marasmus—are benefited by an increased administration of sodium chloride.

In the above case it has acted beyond all hope or expectation, and may almost certainly be said to have saved the patient's life. In certain cases it is undoubtedly worthy of a more extended trial.

Sir Frederick Eve, F.R.C.S. Eng., and Dr. Galloway, F.R.C.P. Lond., have joined the medical board of the Royal Sea Bathing Hospital.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A NOTE ON A CASE OF ANGINA SINE DOLORE AND GASTRIC DEFLATION.

BY H. WALTER VERDON, F.R.C.S. ENG.

THE presence of "risus sardonicus" removes the case from the ordinary category of fainting attacks, and justifies the title of "angina sine dolore." For the reason that but few of these cases find their way into medical literature, the publication of this one will, I believe, prove of interest to readers of THE LANCET.

On the morning of Saturday, May 20th last, a man, aged 63 years, after taking a bath, was seized with a fainting attack and called his wife to his assistance. With her help he put on some light clothing and a dressing gown and went downstairs. While seated at table in the breakfast room, he complained of feeling very ill, the fainting attack recurred and he fell into a state of semi-consciousness. When I entered the room a short time afterwards he seemed to be dying. The posture of the body indicated collapse. He had sunk into a heap in his chair. His head was resting on one of the arms, and his chin was depressed on his chest. His arms hung listlessly by his sides. His face, neck, and hands were cold, grey, bloodless, and wet with perspiration. No pulse was felt in the radial artery, and respiration had apparently ceased. But for the fact that the muscles of the face were contracted and the jaws clenched I would have come to the conclusion, as his wife had already done, that he was dead.

The sardonic grin distorting the man's features reminded me of a similar expression of countenance often witnessed in persons during the course of an anginal seizure, and in certain cases of this disorder having noticed instant relief follow from deflation of the stomach I proceeded to pass an œsophageal tube. A gap in the wall of teeth at the molar region of the jaws furnished a ready means of access to the throat and allowed me the opportunity of performing the operation without any delay. Upon the distal end of the tube engaging the lower end of the œsophagus, or entering the stomach, I do not know which, it liberated gas in considerable volume, and immediately afterwards the patient was observed to take a deep inspiration. The tube was permitted to remain *in situ* until pulse, respiration and consciousness were fully restored, and then irrigation of the stomach with hot water was practised.

The patient had recently shown signs of heart failure when ascending flights of stairs, when walking on hilly roads, and when engaged in other kinds of strenuous exercise. The pulse had been noticed to show signs of myocardial weakness and intermission even at times of repose. After the seizure the pulse grew firmer than it had been for several weeks past and its rhythm was more even and without intermissions. The patient walked upstairs without the signs of distress to which he is accustomed, and on the following Monday went to town, spent many hours in his office, and attended to his business affairs after his usual custom.

The seizure in this case illustrates the operation of a gastric reflex simulating heart failure and belongs to a category described by me in a paper which appeared in THE LANCET of June 18th, 1910, entitled "A Comparison made between the Simple Gastro-circulatory Seizure and the Angina Pectoris Attack." The pathological conditions underlying this form of seizure and also that of angina pectoris probably consist of increased irritability of the glosso-vagus-accessory group of medullary ganglia, following in the train of a long course of gastric disturbances, hypertension of gastro-mural muscle, and an augmented gastric atmosphere. The immediate cause of the seizure is inhibition of the heart through abnormal vagus stimulation.

The symptom referred to above—namely, the risus sardonicus—besides being occasionally seen during the angina pectoris attack, is of exceedingly frequent occurrence in young infants. It is characteristic of flatulent distension of

the stomach. It is excited by irritation of the glosso-vagus-accessory nuclei which are closely related in the medulla with the nucleus of the fifth cranial nerve, the branches of which innervate the muscles of the lower jaw.

The remarkable result obtained from the passage of the œsophageal tube should have the effect of bringing to the notice of the profession the importance of gastric symptoms in cases of this type, since many cases commonly regarded as illustrations of impairment of the contractile function of the myocardium, among which angina pectoris is usually numbered, are in reality subjects of a gastric reflex.

Streatham-hill, S.W.

A CASE OF MELANOTIC SARCOMA OF THE LIVER, SECONDARY TO A MELANOTIC SARCOMA OF THE EYE REMOVED BY OPERATION TEN YEARS PREVIOUSLY.

BY CHARLES H. LILLEY, M.B., CH.B. ST. AND.,
HOUSE SURGEON, ROYAL DEVON AND EXETER HOSPITAL.

THE patient, a female, aged 46 years, was admitted into the Royal Devon and Exeter Hospital on Nov. 10th, 1910. Since the beginning of May, 1910, she had noticed that, to use her own expression, she was "getting hard in the stomach." She placed little or no importance upon this condition until a month prior to admission, when she began to suffer severe pain in the back and down the legs, which at times were swollen. Later she noticed that she was getting much stouter, and that her clothes were very tight around the waist.

The previous history of the case had a most important bearing upon the diagnosis. In the year 1900 the patient had a tumour of the eye removed at the West of England Eye Infirmary, Exeter, by Mr. A. C. Roper, and on inquiry I found that this tumour was a melanotic sarcoma.

On admission the patient's general condition was remarkably good; she was well nourished and not at all cachectic in appearance. Her right eye had been enucleated, and the socket appeared to be quite healthy. An examination of the abdomen showed the presence of a very large and hard tumour filling the greater part of the abdominal cavity. Its upper limit was represented by a line drawn horizontally across the chest at the level of the fifth rib. Laterally the tumour filled both flanks. It was just possible to get the edge of one's hand between the tumour's lower limit and the pubic arch, and at the middle of the lower border a distinct notch could be felt. The surface of the tumour was nodular in places. The hæmopoietic and other systems were normal. The urine did not darken very much on standing, but on the addition of a few drops of ferric chloride it at once darkened, a black deposit forming. The patient went steadily downhill. The abdomen got progressively larger, increasing in circumference from 34½ to 40 inches. The application of the X rays had no effect in reducing the size of the growth. Later jaundice became a very marked feature and the patient passed into a drowsy, stuporous condition, and eventually died on Dec. 27th—i.e., six weeks after admission to hospital. The temperature throughout had shown an evening rise, being frequently over 101° F. and dropping to normal in the morning.

At the post-mortem examination the liver was found to be enormously enlarged and it weighed 19 lb. 6 oz. in fresh condition. It was very dark in colour. On cutting into the tissue it was found to vary in colour, being coal-black at some places and at others of a greyish-black colour. The growth was diffuse, and only one or two islands of normal liver tissue were to be seen. The difference in colour was doubtless due to the greater accumulation of pigment at some places than at others. The other organs were normal, the liver alone being involved. A microscopical section showed spindle cells with blackish-brown granules deposited in and around them.

I have thought this case of sufficient interest to warrant its being published as illustrating (1) the long period—viz., 10 years—which had intervened between the removal of the primary growth and the secondary invasion of the liver; and (2) the large size to which these secondary growths in the liver may attain.

I have to thank Mr. Roper, in whose ward the patient was, for permission to publish these brief notes.

Exeter.

NOTES ON A RARE CASE OF CONGENITAL HÆMATOMA.

BY SPENCER SHEILL, F.R.C.P. IREL., &C.,
EXAMINER IN MIDWIFERY AND GYNÆCOLOGY TO CONJOINT BOARD OF R.C.P. AND R.C.S. IRELAND.

THE subject was a male child, born early in February of this year, which, on examination immediately after birth, was found to have a soft tumour under one of its armpits. The labour was natural in every detail, although it is true the mother was unusually active in struggling during chloroform administration. The tumour was of about the size of a hen's egg and plainly cystic in character. It was situated in the mid-axillary line about an inch below the axilla. It appeared at first to be affected by respiration, but closer inspection revealed that this "hardening" of the mass was most likely due to the action of surrounding muscles. As well as could be made out, the ribs beneath the tumour were normal. It appeared to cause the little patient no inconvenience other than inability to adduct the humerus to the normal extent, although the child was unduly cross, but that is perhaps too common a complaint to be of value as a symptom. On waiting eight days, as the tumour seemed to be if anything slightly larger, I decided to tap it, and withdrew through a large needle nearly four fluid ounces of what appeared to be almost pure blood of a very dark hue. The tumour collapsed completely and the ribs beneath were palpated as normal. It again began to fill slowly and by ten days had attained its previous size. Two days later I noticed a "pulsating" lump at the side of the neck above the clavicle, but the "pulsation" proved to be a "fluid wave" communicated from the original tumour by arm movements and by respiration; one could easily imitate this by the fingers placed on the tumours above and below the clavicle. All this time there were no palpable glands in the neck or axilla. The mother had cardiac disease, as had also her father and two sisters, but I cannot see in this fact anything to throw light upon the origin of the tumour. Of course, I feared sarcoma and was obliged to give a guarded opinion to the parents. On March 4th, that is, about four weeks after the birth of the child, I noted in my case-book: "Tumour softer and smaller, and bulging above clavicle absent." On March 21st the tumour had entirely disappeared, but what feel like two slightly enlarged glands occupy its site.

I cannot look upon this case as comparable to a sterno-mastoid or other hæmatoma due to violence at birth, and my inability to find records of anything similar in a fairly full search through the literature has prompted me to publish these few notes.

Dublin.

Reviews and Notices of Books.

The Surgery of the Diseases of the Appendix Vermiformis and their Complications. By WILLIAM HENRY BATTLE, F.R.C.S. Eng., Surgeon and Joint Lecturer on Surgery to St. Thomas's Hospital; and EDRED M. CORNER, M.A., M.B., M.C. Cantab, F.R.C.S. Eng., Surgeon in Charge of Out-patients and the Surgical Isolation Wards to St. Thomas's Hospital; Lecturer on Practical Surgery. Second and enlarged edition. London: Constable and Co., Limited. 1910. Pp. 291. Price 10*s.* 6*d.* net.

SEVEN years have elapsed since the appearance of the first edition of this work; in those seven years much has been written about the diseases of the appendix, and the authors have endeavoured to incorporate in the volume the important points of the new material. The effect has been a very natural increase in the size of the volume.

The book commences with a brief history of our knowledge of the affection, and it is pointed out that as long ago as 1711 Heister recognised the relationship between disease of the appendix and diffuse peritonitis. The anatomy of the region of the appendix is carefully described, and the varieties of form and position of the organ are illustrated by diagrams. The authors give good reason for thinking that the appendix is not functionless, but that it is a specialised part of the

alimentary canal, as it has a special development of lymphoid tissue for protection against the influence of the bacteria in the cæcum. The etiology of appendicitis is discussed, and the interesting statement is made that, in the opinion of the authors, there is nothing in the way of exercise that is so potent a factor in producing an attack, when appendicitis is latent, as the riding of a motor-cycle. The suggested dependence of the disease on particles of steel in flour is ably argued. The incision which is advocated is that originally introduced by Mr. Battle, one of the authors, and it is probably for many cases the most satisfactory of all. The use of the clamp for crushing the root of the appendix is also advocated, and those who have employed it agree in its rapidity and value. The question as to the time of operation is discussed fully. An interesting section is that dealing with removal of the appendix in patients who have never had a recognisable attack of appendicitis, but who have had vague pains and have urgently demanded removal of the appendix. In all the cases described marked lesions were found. The tumours of the appendix are described, and subdiaphragmatic abscesses and empyemata resulting from appendicitis are also referred to. Two cases are mentioned in which empyemata followed attacks of appendicitis. Chapters on the peculiarities of the diseases at different periods of life and the diagnosis of tumours in the iliac region are provided; and, lastly, there is a chapter on the important subject of appendicitis in relation to life assurance.

This valuable treatise represents fully the present state of our knowledge of appendicitis, and it may with confidence be recommended to all who wish to study the subject.

Foods and their Adulteration. By HARVEY W. WILEY, M.D., Ph.D. Second edition, revised and enlarged. With 11 coloured plates and 87 other illustrations. London: J. and A. Churchill. 1911. Pp. 641. Price 21*s.* net.

Dr. Wiley's book covers a lot of ground in connexion with the question of foods in general and of their adulteration in particular, as might be expected from his official connexion for a great many years as chemist to the Government of the United States of America. He has been closely associated with far-reaching movements of reform in that country aimed at raising the standard of purity of foods, and in spite of the drastic character of some of the proposals for which he was in part responsible, they have appealed to the State and have been admitted as legislative measures. The opposition was, of course, severe, but it appears to have died down, and we have even heard that a good many of the erstwhile enemies to the proposals have subsequently adopted a friendly bearing to the new food laws and the standards of purity which they contain.

The present work is the second edition. Of the first edition a review appeared in our columns of Sept. 28th, 1907. For the most part the book remains in its original presentation, the work of revision and addition having been applied mostly to Part X., which deals with infants' and invalids' foods. This chapter, we find, has been extended to nearly 100 pages, and an inspection of their contents shows that a valuable addition to the subject matter has been made. A completely new addition consists in Part XI., which sets out some simple methods for detecting food adulterations. Dr. Wiley holds that many forms of adulteration may easily be determined by simple tests that anyone without the training of the professional chemist may practise, using the ordinary apparatus found in the household and reagents which are constantly at hand or which may readily be obtained at the drug store. We do not agree with this recommendation. It is true that the layman may educate himself to detect additions which are of a more or less coarse kind, but the practice of preserving foods—for example, with antiseptics—is not a clumsy proceeding nowadays, but requires a skilled person to lay it bare. We very much doubt if a layman could carry out with certainty the detection of benzoic acid in foods. Moreover, he is instructed to employ chloroform for the purpose, and a layman has no right to be in the possession of this drug. He is recommended to use chloroform also for extracting salicylic acid and saccharin from foods and liquids. The art of preserving foods is getting increasingly subtle and the highly trained chemist requires all his skill to be able to certify that a given article of food is free from objectionable preservatives. It does not suit the manufacturers' or purveyors' business to use a preservative that is easily detected, and the directions here given to the uninstructed in these matters are pretty certain to end in a failure to obtain positive results. The conclusion, therefore, of the household experiment might obviously give a false sense of security.

We attach a much greater value to the series of monographs on special invalid foods, which contain many sound common-sense observations as to their questionable advantages. In this section there is also given an extensive series of analyses of many familiar and widely advertised infants' and invalids' foods and medicinal foods, which presents many interesting points to the medical and analytical practitioner. The general information as to the distribution of various foods and their preparation for the consumer is, further, a valuable asset of the book.

A Manual of Pathology and Morbid Anatomy. By T. HENRY GREEN, M.D. Lond., F.R.C.P. Lond. Eleventh edition, revised and enlarged by W. CECIL BOSANQUET, M.A., M.D. Oxon., F.R.C.P. Lond., Assistant Physician to Charing Cross Hospital. With 350 illustrations. London: Baillière, Tindall, and Cox. 1911. Pp. 642. Price 15*s.* net.

IT is about six years since the tenth edition of this work, which was reviewed in THE LANCET of Nov. 4th, 1905, was issued. The book is now published as one of the "University Series," and is a distinct improvement on its predecessor. The paper is now white instead of a faint yellow, which brings out the illustrations much better. Some of the longer chapters have been subdivided, while the number of illustrations and pages is about the same. As to the text, it has been slightly rearranged, modified, and added to, more especially in the chapters dealing with parasitology, where these changes were necessitated by the recent discoveries of the relation of protozoa to disease and of the part played by spirochætæ in diseases of animals as well as of man. "Parasites" occupy about 120 pages. Some of the advances that have been made in pathological chemistry have been incorporated. We think that the introduction of the dates of certain great discoveries would help to interest the student. A few are introduced in certain chapters under "Parasites," but there is room for more—e.g., the date of the discovery of tubercle bacillus, of John Hunter's famous experiments mentioned in the text, of Reverdin's work on skin-grafting, of Hodgkin's and Raynaud's diseases, and many others. When discussing "fatty changes," perhaps it would have been well to add some of the more recent methods for the staining of fats—e.g., Sudan, Scharlach, Nile Blue, and the use of bichromates in this connexion. While osmic acid is referred to on p. 565, it should have been pointed out that all forms of fat are not stained black by this reagent. We did not find the word "enzymes" either in the text or index. It may, however, be in the former. *Per contra*, acromegaly is referred to in the text, but does not occur in the index. More details might have been given on pentosuria and the effects of adrenalin on the arterial wall. The illustrations in

the nervous system are largely taken from Mott's excellent researches. In Fig. 306, should not "Betts' cell" be Betz's? Two-thirds of the whole is devoted to general pathology and one-third to special tissues and organs. There are no references to original papers. The student of all grades will find that this work will meet his wants.

A Handbook of Intestinal Surgery. By LEONARD A. BIDWELL, F.R.C.S. Eng., Surgeon to the West London Hospital; Lecturer on Intestinal Surgery and Dean of the Post-Graduate College. Second edition. London: Baillière, Tindall, and Cox. 1910. Pp. 215. Price 6*s.* net.

THE importance of the surgery of the intestine can hardly be over-estimated, and we are pleased to see a second issue of this little work, because it contains a system of training in intestinal surgery which is eminently desirable for all who would undertake operative work on the abdomen.

The book arose from a practical class in intestinal surgery which was established at the West London Post-Graduate College. In that class practical instruction is given in the application of sutures to intestines, and for this purpose the small intestine of bullocks is employed, obtained from the slaughter-house on the day the animal is killed. The intestine of the bullock closely resembles human intestine, for its thickness is about the same, while in many of the lower animals, such as the dog, the intestinal wall is much thicker than it is in human beings, and therefore if the intestine of the dog be employed students may obtain a wrong idea of the care which is necessary in certain sutures. Mr. Bidwell has devised an ingenious little intestine holder which takes the place of an assistant. The book will therefore serve as a guide, not merely in the performance of intestinal anastomosis in the laboratory, but also equally well for instruction in the methods to be followed in the operating theatre. The descriptions are extremely clear, and the whole work is of an eminently practical character.

Gehirn und Rückenmark: Leitfaden für das Studium der Morphologie und des Faserverlaufs. Von Dr. EMIL VILLIGER, Privatdozent für Neurologie und Neuropathologie an der Universität Basel. With 224 illustrations, partly coloured. Leipzig: Wilhelm Engelmann. 1910. Pp. 278. Price M. 12·80.

THE physician who would combine the scientific with the clinical side of diseases of the nervous system cannot do better than make himself familiar with the contents of this excellent "Guide." Accuracy of diagnosis depends on a sound knowledge of the anatomy of the nervous system, for there is no other class of disease in which the symptoms are associated less with the nature of the pathological process than with its localisation. Lesions in the central nervous system separated from each other by merely 1 centimetre, or even less, may in certain instances give rise to widely differing clinical pictures. Hence the fundamental importance of nervous anatomy. Dr. Villiger is to be congratulated on the manner in which he has accomplished the task of providing a "key" to the study of the anatomical complexities of the nervous system. While the descriptions in the text are for the most part so lucid and methodical as to reduce possible confusion to a minimum, he has relied on a splendid series of diagrams, of which some are partly coloured. By giving so large a number of them the author has been able to simplify them, and their clearness leaves nothing to be desired. The intricacies of the basal ganglia, brain stem, pons, and medulla are treated in a masterly fashion. The elaborate connexions of the cerebellum are made plain in a series of particularly good diagrams. In a word, this well-printed and well-got-up volume combines the advantages of an atlas with those of a systematic treatise on the subject, yet it is neither too long nor too intricate for the author's purpose, as stated in the preface, and we do not know any equally concise volume in which the matter is so adequately handled. We consider the book, with its schematic and microscopical illustrations, an excellent study of nervous anatomy, and one that may be consulted with great profit by the neurologist.

Das Asthma, sein Wesen und seine Behandlung. (Asthma, its Nature and Treatment.) By Dr. BRÜGELMANN, Baden-Baden. Fifth edition. Wiesbaden: J. F. Bergmann. 1910. Pp. 268. Price 5*s.*

Dr. Brügelmann bases the results which he records in this volume on the experience gained by investigations during 32 years into the nature and treatment of asthma. In discussing the etiology and pathology of the disease he maintains that it is invariably brought about by an irritation of the central nervous system, especially of the centre of respiration. He states that he uses the term "central nervous system" advisedly, since the site and exact physiology of the centre of respiration have not yet been accurately determined. He further considers that the classification usually adopted—viz, into spasmodic and bronchial asthma—should be abandoned, since the paroxysms in both conditions are due to the same cause—namely, the central irritation. This irritation, he says, may arise from several causes, and he arranges them into three groups, classifying the cases of asthma according to the nature of the irritation:—1. Traumatic asthma. Here the irritation may arise from injury of the brain by blows, falls, shock, or the influence of cold; also emotional conditions are included under this heading. 2. Reflex asthma. In this group the irritation is produced in a reflex manner, the primary lesion being "asthmatic points" having their rise in the mucous membranes of various regions; also nervous conditions (e.g., neurasthenia) may have a similar action. 3. Toxic asthma. Various toxic conditions of the blood may supply the necessary irritant. The various forms of treatment are discussed at length, and numerous suggestions are made as to the divers methods that may be adopted in the different varieties of the disease.

Those practitioners who are especially interested in the nature and treatment of asthma will find this book interesting. The whole subject is considered in a manner different to that found in other text-books, the arguments used are worthy of consideration, and the portions devoted to treatment give valuable information.

JOURNALS AND MAGAZINES.

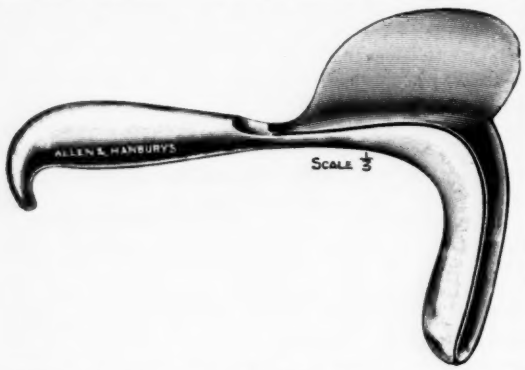
Quarterly Journal of Experimental Physiology. Vol. IV., No. 1, March 3rd, 1911; and Vol. IV., No. 2, June 10th, 1911. Price 6*s.* each part. London: Charles Griffin and Co., Limited.—Dr. J. Argyll Campbell, in his paper on the Effects of Certain Animal Extracts on the Blood-vessels, finds that using suprarenal extract in the form of hemisine by the perfusion method causes marked constriction of the vessels of all the organs with the exception of those of the heart and lungs. Pituitary extract seems to contain two substances, one causing constriction and the other relaxation. Dr. T. Graham Brown continues his studies in the reflexes of the guinea-pig, the present papers being Nos. 6 and 7 of the series. A cognate subject is this author's joint notes with Professor C. S. Sherrington on the pilomotor system Those who are interested in the psychology of the emotions will read with particular interest these "Notes," which are very suggestive in regard to "expression." The paper on narcosis and that on the pilomotor system are illustrated by photographs of the animals used. Dr. George Oliver's paper on two new methods of reading the arterial blood pressure in man will be of interest to medical men. Dr. Sutherland Simpson and Miss J. L. King find that in the sheep the motor area is located in the superior frontal

convolution, and as a corollary may be taken Miss King's contribution on the descending spinal paths in the same animal. The pyramidal tract is comparatively small and cannot be followed beyond the first cervical segment. Mr. W. A. Jolly's observations on the time relations of the knee-jerk and simple reflexes were made on the rabbit, by means of the string galvanometer. Mr. H. E. Roaf's paper is a short one. He finds that in a strip of tissue near the rectal gland in Purpura lapillus there is a pressor substance allied to adrenin. Dr. R. Burton-Opitz of Columbia University contributes three papers (Parts II., III., and IV.) on the vascularity of the liver. For the results we must refer the reader to the original papers. Dr. J. Ritchie and Mr. Ninian Bruce find that in diphtheritic toxæmia in guinea-pigs there is a complete or relative absence of adrenalin and that death appears to result from a condition which might be compared to acute Addison's disease. Dr. P. T. Herring continues his observations on the histology and functions of the pituitary body. In elasmobranchs the secretion is poured directly into the blood-vessels.

New Inventions.

AN IMPROVED VAGINAL SPECULUM.

THE accompanying illustration shows an improved form of Sims's vaginal speculum, which I have found useful. I have added a flange-like projection to the upper blade, which is of considerable assistance when examining patients in the left lateral position. The flange lifts up the right buttock



when the speculum is inserted so that one can dispense with the help of a nurse or assistant and a much better view of the cervix is obtained than is possible with the ordinary form of duckbill instrument at present in use. The speculum has been made for me at my suggestion by Messrs. Allen and Hanburys, Wigmore-street, W.

C. HUBERT ROBERTS,
M.D. Lond., F.R.C.S. Eng., F.R.C.P. Lond.
Welbeck street, W.

ASYLUM REPORTS.

Surrey County Lunatic Asylum at Brookwood (*Annual Report for the Year 1910*).—The total number of cases treated at this asylum during the year was 1315, the average number resident being 1063. There were admitted 283 cases, of whom 141 were males and 142 were females. 133 cases were discharged, 75 being discharged as recovered, giving a recovery-rate calculated on the admissions, but excluding transfers from other asylums, of 43·69 per cent for the males and 24 per cent. for the females, the total average being 32·89 per cent. There were 72 deaths during the year, a percentage on the daily average number resident of 6·77. The cause of death was verified by post-mortem examination in 93 per cent. of the deaths.

County and City of Worcester Lunatic Asylum at Powick (*Annual Report for the Year 1910*).—At this asylum the average number resident was 957. The admissions numbered 189, there being 80 males and 109 females. A percentage of 13·2 of the direct admissions had had a previous attack. A history of insane heredity appears to have been obtained in only 3·7 per cent. Sixty-seven persons were discharged during the year. Of this number 15 males and 24 females were discharged recovered, being a rate of 25·8 on direct admissions. Sixty-three persons died, and post-mortem examinations were made in 52 cases. The chief causes of death were: phthisis, 20·6 per cent.; heart disease, 12·7 per cent.; Bright's disease, 11·1 per cent.; and old age, 24 per cent.

Derby Borough Asylum (*Annual Report for the Year 1910*).—The daily average number resident at this asylum was 357. The number of patients admitted was 84. The general health of the patients admitted was found to be very unsatisfactory, and the medical superintendent, Dr. S. Rutherford Macphail, remarks that in many cases the mental condition was complicated with bodily disease of a serious nature, no less than 69 per cent. being found to suffer from recognisable physical disease. One-fourth of the patients admitted had organic heart disease. Inquiry revealed the occurrence of actual insanity among near relations in 40 per cent., while in several others mental and physical defects indicating degeneration were observed. Thirty-six patients were discharged, 30 as recovered. The recovery rate was 45·45 per cent. of the admissions, excluding transfers, and 6·90 per cent. of the total number under treatment. The number of deaths was 23, being a percentage of 6·44 on the daily average number resident. The average age at death was 54 years. The death-rate is the lowest in the history of the asylum. Post-mortem examinations were made in every case. General paralysis was found to be the cause of death in 23·8 per cent., phthisis in 7 per cent., and senile decay in 9·5 per cent.

Bucks County Asylum at Stone (*Annual Report for the Year 1910*).—The average daily number on the register at this asylum was 665. There were admitted 210 patients, 91 being males and 119 females. Of those admitted, and excluding congenital cases, 110 were first-attack cases, while 36 had suffered from one or more previous attacks. An insane heredity was ascertained in 47 cases, or 28 per cent. Altogether 94 patients were discharged, of whom 66 had recovered, giving a recovery rate of 43·7 per cent. for males and 36·9 per cent. for females calculated on the direct admissions. The death-rate was 9·3 per cent. of the average number resident, as compared with 12·2 of last year. The death-rate from tubercle was low, being 6·4 per cent. of all causes. A female patient died at the age of 74, after 57½ years' residence.

Monmouthshire Asylum at Abergavenny (*Annual Report for the Year 1910*).—At this asylum the average number resident was 951. There were admitted 174 patients, of whom 100 were males and 74 were females. Seventy-seven patients were discharged, and of these 54 were discharged as recovered. The recovery rate for the year, calculated on the total number of admissions, was 31 per cent., or 22 per cent. for males and 43·2 per cent. for females. This rate is 5 per cent. lower than the average rate obtained since the opening of the asylum and is accounted for by the very low rate among the male patients which arises from the unfavourable character of these cases on admission. The deaths numbered 75, and the rate, calculated on the average number resident, was 7·8 per cent. Post-mortem examinations were made in 77 per cent. of those who died.

City of London Asylum at Stone, near Dartford (*Annual Report for the Year 1910*).—The average daily number resident at this asylum was 589. There were 164 admissions. Discharges were 94, of which 31 were recoveries, being a proportion per cent. of 24·2 on the direct admissions. Deaths numbered 43, and 29 necropsies were made. The percentage of deaths was 7·30 on the daily average number resident. The medical superintendent, Dr. R. H. Steen, reports that the death-rate from consumption on the average number resident was only 3·4 per 1000, and he inclines to attribute this to the situation of the asylum upon a chalk hill and to the open-air life led by the patients. Verandahs are in use throughout the whole year for cases of mental disorder requiring treatment by means of rest in bed. Patients appear to become much attached to sleeping in the verandahs, and when, owing to severe weather, their removal indoors was contemplated, a storm of opposition arose.

THE BRITISH MEDICAL ASSOCIATION.

SEVENTY-NINTH ANNUAL MEETING IN BIRMINGHAM.

THE annual dinner of the Association was held on the evening of July 27th, in the spacious hall of the Grand Hotel, with the new President in the chair. There were nearly 250 members and guests present, and the banquet was in every way a great success. The company included the Bishop of Birmingham, Lord Ilkeston, the Lord Mayor of Birmingham (Alderman W. H. Bowater), Sir Oliver Lodge, Mr. Neville Chamberlain, Sir John Holder, Mr. L. S. Amery, M.P., Mr. J. T. Middlemore, M.P., Sir James Barr, Sir Francis Lovell, Sir James Sawyer, Professor Strassmann of Berlin, Professor R. A. Reeve, Professor Stoeltzner, Professor Vogt, Dr. Byrom Bramwell, the principal office holders in the Association, and seven or eight lady members, including Dr. Mary Scharlieb and Dr. May Thorne. After the loyal toasts had been honoured the Bishop of Birmingham proposed the toast of "The British Medical Association," and spoke of the sympathy between the clergy and the medical profession. Both callings were much criticised, and both were often accused of considering class interests when they were really upholding the best interests of the nation and of humanity. Dr. Ewen J. Maclean, the chairman of representative meetings, in responding to the toast, spoke of the Association's work in connexion with the National Insurance Bill. For the first time in its history the profession had come in contact with the political machinery of the country. The Association, by keeping to the front line of its policy, had secured much already. If it adhered to its demands it would enable the medical profession to do its duty both as doctors and as citizens. Mr. Amery, the Member for South Birmingham, in proposing the toast of that city, spoke of Mr. Chamberlain's services to medicine. With reference to the Insurance Bill, he agreed with those medical men who doubted whether "doctoring in abundance and doctoring on the cheap" was the best way of attacking the problem of the public health. He said that all medical men wished to support a scheme which would not lower professional standards. The Lord Mayor responded in a humorous speech which delighted the company. Professor Gilbert Barling gave a graceful welcome to the guests of the evening. Of Lord Ilkeston, he said that the profession looked to him for help when the Bill reached the House of Lords, and hoped that he would so guide that assembly in the matter that wisdom and justice would prevail. Professor Strassmann and Mr. Middlemore responded on behalf of the visitors, and thanked the Association for its hospitality and congratulated it on the scientific and social success of the seventy-ninth annual meeting. The health of the President was warmly proposed by Mr. Neville Chamberlain, and after Professor Robert Saundby had replied, a very pleasant gathering broke up.

The summer general meeting and luncheon of the Irish Medical Schools and Graduates' Association was held on July 26th, at the Imperial Hotel, Birmingham. In the unavoidable absence of Sir Charles Cameron, C.B., Dr. Macnaughton Jones took the chair. The luncheon was a very successful one, and there was a large attendance, including ladies.

On Thursday, July 27th, a special Honorary Degree Congregation in connexion with the visit of the British Medical Association was held at the University at Bournbrook in the afternoon, when the honorary degree of Doctor of Laws was conferred upon Mr. John Burns and upon eight distinguished medical men. The Principal of the University, Sir Oliver Lodge, in presenting the recipients of these degrees to the Vice-Chancellor, made in each case a brief speech of welcome and introduction. Besides the President of the Local Government Board, the degree was conferred upon Dr. Byrom Bramwell of Edinburgh; Professor R. H. Chittenden of Yale; Sir Francis Lovell, President of the Section of Tropical Medicine; Dr. J. A. Macdonald, Chairman of Council of the Association; Dr. H. Oppenheim and Dr. Paul Strassmann of Berlin; Professor R. A. Reeve of Toronto; and Professor Sims Woodhead of Cambridge. After the Congregation many of the visitors stayed to inspect the handsome new buildings of the University of Birmingham.

In connexion with the annual meeting, the National Temperance League held its forty-third annual breakfast conference at the Grand Hotel on Thursday morning, July 27th, under the presidency of Professor Robert Saundby. The company numbered nearly 200, and several interesting speeches were made.

On Saturday, after the formal and scientific proceedings in Birmingham were over, the President and a number of members paid a visit to Warwick and Leamington, at the invitation of the mayor and corporation of Leamington and the local division of the Association. Warwick Castle was visited, and the guests were entertained to luncheon at the Leamington Town Hall under the chairmanship of the mayor, Dr. Harold Mason. On the same day a large party journeyed to Droitwich to inspect the brine baths. The party were first conducted to the brine bathing establishments, where the mayor received them. Here the several forms of treatment were explained by the resident medical officers and the manager, and many of the party used the swimming baths. Subsequently 150 guests were entertained to luncheon in the Salter's Hall by Lord Cobham and Mr. Willis-Bund. Other very pleasant excursions were made during the week to Lichfield, to Lady Warwick's Horticultural College for Women at Studley Castle, to Coventry, to Stratford-on-Avon, to Hereford, and to Malvern and Worcester. The arrangements were good, and many members and ladies took the opportunity to visit these interesting places in the fine weather which prevailed throughout the whole meeting.

As on previous occasions, we wish to record our thanks to the executive officers of the British Medical Association, and to the Editor and staff of the *British Medical Journal*, for many acts of courtesy and consideration shown to us during the course of the annual meeting.

THE SECTIONS.

MEDICINE.

WEDNESDAY, JULY 26TH.

President: Dr. A. H. CARTER (Birmingham).

The PRESIDENT wished to associate the officers of the Section with the general welcome offered to members and guests on their visit to Birmingham. He also expressed his indebtedness to those who were taking part in discussions or reading papers before the Section. He thought the annual meeting of the Association was not an ideal place for the presentation of new and original work owing to the short time available for each paper and the many distractions offered, but it afforded an excellent opportunity for discussions on clinical problems of every-day experience, and it gave practitioners an opportunity to bring themselves abreast of the times in matters of practical interest.

A discussion on the subject of

Asthma: its Varieties and Treatment,

was opened by Dr. GEORGE ALEXANDER GIBSON (Edinburgh)

who began by stating that the subject was one of special interest since the condition of asthma was dramatic in its symptomatology, elusive in its pathology, and uncertain in its therapeutics. He first outlined the anatomical relations and the physiological mechanisms of the respiratory system. He pointed out the importance of the upper air-passages as a means of warming and purifying the air breathed, constituting a defensive mechanism against noxious agencies. The particular importance of the large amount of erectile tissue in the nasal fossæ in regard to the pathology of asthma was then referred to, and the striking part it played in certain types of the disease was mentioned. The next important facts brought forward were that the larger respiratory tubes were practically rigid and for the most part devoid of muscular tissue, whilst the smallest tubes contained muscular tissue, which appeared to be without tonus under ordinary conditions. He pointed out that cilia were to be found in the respiratory passages, except in the last ramifications of the bronchi. In discussing the nervous mechanism of respiration, he referred to the fact that practically every afferent nerve possessed the power of modifying respiration and that the efferent fibres were contained in the fifth, seventh, ninth, tenth, eleventh, and twelfth cranial nerves and in the spinal roots. The important work of Dixon and Brodie had demonstrated that the muscle in the finest bronchial tubes was under the influence of fibres in the vagus nerves which conveyed both constrictor and dilator influences. He mentioned the interesting observations of Dr. Watson Williams, which suggested that there occurred a rhythmical contraction and dilatation of the finer bronchial tubes, the contraction occurring with expiration, the dilatation with inspiration. He then reviewed the theories which had been put forward to explain the asthma paroxysm, beginning with the view originally put forward by Cullen, and adopted and expanded by Laennec, that it was due to spasm of the finer bronchial tubes. Other theories attributed the paroxysm to weakness of these muscular fibres, to spasm of the diaphragm, and to a vasomotor neurosis as suggested by Traube and Weber. Sir Andrew Clark had adopted the view of a vasomotor neurosis, and believed that in addition there occurred a condition in the mucous membrane of the bronchi analogous to urticaria of the skin. Curschmann had put forward the view that there was a condition of bronchiolitis exudativa. Dr. Gibson believed that recent work proved that the old view of Cullen was the correct one. He wished clearly to differentiate between true asthma and some forms of secondary dyspnœa which counterfeited it, and in this connexion he read a letter which he had received from Sir T. Clifford Allbutt protesting against the current confusion of nomenclature caused by such expressions as cardiac asthma. Dr. Gibson associated himself with this protest and maintained that there was but one asthma. In his view all true asthma was neurotic in origin and must be distinguished from dyspnœa due to toxic causes or to the cyanosis of cardiac disease. In true asthma there might be additional factors, but the principal point remained that it was a neurotic affection. Dr. Gibson had been struck with the periodicity in the incidence of attacks of asthma, and he believed that there was a rhythm which dominated the attacks. He suggested that some *materies morbi* might be stored up and give rise to the attacks explosively. He referred to the direct effects of grief, anger, and other emotions in precipitating the attacks, and also mentioned a case of Heberden's in which asthmatic paroxysms occurred in association with an exostosis pressing on the vagus nerve, and another case in which the same condition resulted from a neuroma of that nerve. The effect of various agents, such as fog, the pollen of grass, the scent of a cat, upon the mucous membrane of the air passages in bringing about the paroxysm reflexly was then discussed. The fact that irritation of the digestive tract, the urinary organs, pelvic viscera, and skin might act in a similar manner was brought out. Dr. Gibson then enumerated the effects of asthma—viz., the over-distension of the lungs, emphysema of the compensatory type, and later of the large-lunged variety, the sclerosis of the pulmonary vessels, and distension of the right side of the heart. He pointed out that all these results had been reproduced in experiments. He believed that the explanation of the distension of the lung was that expiration was incomplete, being interrupted by another inspiration. In regard to treatment, he counselled careful watching of the digestive system, securing thorough excretion, and maintaining the circulation in a condition of adequacy. Catarrh of the respiratory tract was to be prevented. Climatic treatment was difficult. In matters of diet food which was easily assimilated should be given, and distension of the stomach was to be avoided. In regard to drugs, it was known that muscarine would cause asthma, while atropine would stop it. Chloroform, ether, and atropine were stock empirical remedies for which experiment had established a real basis. Morphine stopped the paroxysms at once, but Dr. Gibson, while he admitted using it occasionally, confessed that he did so not without fear. Lobelia was useful, but its effects were short in duration. Nitrites served to relieve spasm. Cocaine was used, but he pointed out the dangers attending its use, and he believed that it should be employed with the greatest reservation. He believed that suggestion might be helpful in neurotic patients.

Dr. R. SAUNDBY (Birmingham), the President of the Association, accepted the view that asthma was a neurosis, but thought Dr. Gibson had narrowed this conception unduly. Dr. Saundby believed that there was reflex spasm, mainly of the respiratory muscles, with spasm of the smaller bronchioles and turgescence of the mucous lining. He referred to recent observations upon anaphylaxis in asthma, showing that asthmatic patients were particularly liable to fatal anaphylaxis after ordinary doses of diphtheria antitoxin. He thought this suggested an analogy of the bronchial changes with the urticaria which also occurred after diphtheria antitoxin. He mentioned the class of cases cured by such measures as removing polypi from the nose, but stated that in many asthmatics the causative agent was unknown. He quoted cases where locality played an important part and referred to some caused by emanations from animals and from furs. In connexion with diet he advised small meals and easily digested food. A purin-free diet was well worth trying for a time. He believed that the periodicity described by Dr. Gibson accounted for some drugs obtaining a fictitious reputation. Asthma was often a family disease, but might be acquired, sometimes after influenza. In regard to treatment he described the use of iodides. He had found the fluid extract of grindelia of more value than lobelia. He had no confidence in the nitrites, and referred to the use of adrenalin. Asthma powders were sometimes useful, and sprays, though only palliatives, gave encouragement to the patients.

Dr. SAMUEL WEST (London), while accepting the results of physiological experiments, thought there was much which prevented our accepting any theory as entirely adequate. He thought there was a more widely spread condition in asthma than mere spasm of the bronchial tubes. He pointed out that there was a real analogy with epilepsy, and he suggested that asthma was a central rather than a peripheral neurosis. He urged that age was a very important consideration, and stated that so-called asthma beginning in later life raised a strong presumption that it was really one of the forms of secondary dyspnœa and not true asthma. In regard to diagnosis, he pointed out that in children paroxysmal attacks closely resembling asthma occurred as a result of irritation from enlarged bronchial or mediastinal glands, and in adults the condition of plastic bronchitis gave rise to periodical paroxysmal attacks, which were readily cured by iodide of potassium.

Dr. WILLIAM HUNTER (London) employed potassium iodide chiefly in the treatment of the disease. He referred to the use of nitrite of amyl. He thought the spasm was the essential feature in the paroxysm and was of more importance than the congestion.

Dr. T. STACEY WILSON (Birmingham) thought there were risks in the use of nitrites in conditions of bronchial spasm. He suggested that this spasm in capillary bronchitis and in asthma might exert a protective function.

Dr. WILLIAM EWART (London) thought the causation of asthma was always peripheral, and that the first and main factor was contained within the sphere of the vagus. The causation was so varied that there could be nothing specific about the spasm, and he therefore could understand the success of treatment along divergent lines. He discussed the value of powders, and believed that the carbon dioxide in the smoke was a factor in their usefulness, since this substance promoted expiration.

Dr. O. F. F. GRÜNBAUM (London) referred to the use of

vaccines in the treatment of asthma. He had seen cases benefited by this means, but the presumption was that vaccines would only be of use in cases with chronic bronchitis.

The PRESIDENT of the Section, while agreeing that the term asthma should be used in a strict nosological sense, thought Dr. Gibson had been a little severe on those who used it in a symptomatic sense. He urged that in regarding asthma as a neurosis they should be quite clear what they mean by a neurosis. He defined it as a condition of nervous instability. He counselled the adoption of measures to improve the stability of the nervous centres. He believed that a meat diet increased nervous irritability.

Dr. GIBSON replied.

A paper was read by Dr. J. DOUGLAS STANLEY (Birmingham) on

Lung Syphilis.

He pointed out that although pathologists recognised syphilis of the air passages, clinicians showed reluctance to diagnose it. Strümpell had said that no definite clinical description of pulmonary syphilis could be made. There was reason to believe that syphilis and tubercle might coexist, and there appeared to be a predisposition on the part of the syphilitic patient to contract tubercle. This was doubtless to blame for errors in diagnosis. In his paper he confined himself to acquired syphilis. In a series of 1000 cases notified as phthisis he had found two certain cases of syphilis and one doubtful one. In the last seven years he had collected 15 cases, some of which were still under observation. The lesions of syphilis might affect the lungs and pleura only, or the trachea and bronchi, or all of these. Lesions due to secondary syphilis were not of much clinical importance, but ought not to go unrecognised. He described a case in which laryngitis and pleurisy occurred in the secondary stage. In the tertiary stage the trachea was particularly liable to undergo ulceration, and this ulceration might go on to perforation or produce very marked stenosis. The main bronchi might be affected and similar effects might be produced, but the most marked clinical effect was the liability to bronchiectasis. As regards the lung tissue various effects were described, the early changes being an intense cell proliferation filling the alveoli and infiltrating the surrounding structures. The vessels showed the typical changes of syphilis. The process was fairly rapid and was in effect an acute interstitial pneumonia. The next variety described by Dr. Stanley was an early diffuse sclerosis. The lung in these cases was tough and showed great increase of connective tissue. Miliary gummata were plentiful. There was marked proliferation of the elastic tissue. This process was a result of the previous one. The third form was a dense sclerosis. The lung might be contracted and misshapen. Miliary gummata and vascular changes were common. Coarse gummata may occur in syphilis of the lung, but Dr. Stanley had not seen them without some of the other lesions described. The symptoms and signs produced in lung syphilis were illustrated by descriptions of cases. They were much more definite when the lesions were more chronic. Hæmoptysis occurred, and was more suggestive of slow ulceration of a bronchial surface owing to its muco-sanguineous appearance. Cough was irregular and often paroxysmal. Pyrexia, sweating, and wasting occurred and were due to mixed infection. They helped in the imitation of phthisis by syphilis. Signs more marked round the root of the lung or in the interscapular region should suggest a syphilitic lesion, given other indications of syphilis. The constantly negative result of examinations for tubercle bacilli was of great importance in diagnosis.

Dr. HUNTER stated that he had not seen a case of this condition in 1000 post-mortem examinations which he had made. He agreed that the fact that cases of syphilis of the lung tended to become tuberculous increased the difficulties of diagnosis.

Dr. LAURISTON E. SHAW (London) stated that he had seen in museums similar specimens to those described and shown by Dr. Stanley, but he had not found them in his own post-mortem experience. He thought the explanation might be that syphilis was becoming less frequent in London than it was formerly.

Dr. WILSON and Dr. SAUNDBY both took part in the discussion, the latter affirming that visceral syphilis was rare in Birmingham.

Dr. STANLEY replied.

SURGERY.

WEDNESDAY, JULY 26TH.

President, Sir THOMAS F. CHAVASSE (Birmingham).

The PRESIDENT expressed the great regret that was felt at the loss of Mr. Furneaux Jordan; even at the last meeting of the Association in Birmingham he had retired from practice, but he would always be remembered as a lucid teacher and a skilled surgeon, who had reflected much credit on the Birmingham Medical School.

A discussion was opened by Mr. J. RUTHERFORD MORISON (Newcastle) on

The Treatment of General Septic Peritonitis.

He said that it had been calculated that the extent of the peritoneum was almost equal to that of the skin, and just as shock and rapid death might follow an extensive scald of the skin, so the same result might follow the injury to the peritoneum produced by general septic peritonitis. The cause of the condition was always an invasion of the peritoneal cavity by pyogenic organisms through some gross channel; and the most frequent cause was appendicitis or rupture of a gastric or duodenal ulcer. Microbically it might be said that the cause was generally a streptococcus. Death was most commonly the result of toxæmia, and it might prove fatal in a few hours. The terminations of septic peritonitis were the same terminations as those of inflammation elsewhere, and they were resolution, fibrosis or destruction and gangrene. If an arm was too tightly bandaged one of these results might follow: the arm might recover completely or it might undergo fibrosis causing Volkmann's ischæmic paralysis, or gangrene might occur. At first attempts to treat by operation general peritonitis were very extensive, and the more extensive they were the more quickly the patient died. The discovery of the germ causing the disease has in no way aided in the cure of the patient, and for surgical purposes the name of the organism present was of little avail; and the results were determined more by the circulatory disturbance produced than by any specific microbic action. Beyond arrest of the supply of germs by removal of the primary focus, surgery could do nothing except by dealing with the results. Knowledge of the condition of the general and local circulation was of more importance in prognosis and treatment than of the name of the organism producing the mischief. The prognosis was good if the heart was strong and the reaction satisfactory and the pulse was under 100; but if the patient was collapsed and the extremities were cold the prognosis was bad. They might speak of toxæmia, but they knew very little of what toxæmia was. Anything which disturbed the balance between the splanchnic and general circulations led to serious symptoms. The peritonitis was a natural reaction to the injury. The peritoneum was not so sensitive to and helpless under injury as used to be thought. It had great resisting power, greater than that of the more superficial tissues. The free secretion of peritoneal fluid was of great value, and the omentum was of important service as a life-saving agency. The mortality of general peritonitis had much decreased of late years, and the chief factor in the marked improvement of results came from an earlier diagnosis of the cause and more prompt treatment. Figures were produced showing the results of the treatment of all cases of peritonitis admitted to the Royal Victoria Infirmary, Newcastle, during the year 1910. There were in all 427 cases with 18 deaths; 33 of the cases were associated with general septic peritonitis, and of these 25 were operated upon; 13 recovered and 12 died. Eight were not operated upon, and of these 2 recovered and 6 died. To show the great importance of removing the primary focus the following case was related. A woman who had had seven children endeavoured to procure abortion at the third month of pregnancy by introducing a crochet hook into the uterus; the hook broke, and two days later she was admitted into Newcastle Infirmary with severe abdominal pain and a pulse of 120. The cervix was divided to facilitate examination and the remaining half of the needle was removed. Vaginal hysterectomy was performed, and the uterine peritoneum was found to be raised in bullæ. The patient recovered. The special and only reason for operation in general septic peritonitis was to deal with the infecting focus. In nearly every case immediate operation was needed, but it should be

performed in a properly equipped hospital or nursing home. Removal rarely made the patient worse. There were three great depressing factors: 1. Exposure; it was important to keep the patient warm. 2. The anæsthetic; as little as possible should be given and for as short a time as possible. It was better to begin with chloroform till the laryngeal reflex was lost and then to give ether. 3. Excessive manipulation; it was extremely important to handle the intestines as little as possible, for if there was rough manipulation the amount of shock was increased. The incision that was best was either a vertical incision in the middle line or an oblique incision in the line of the fibres of the external oblique muscle. It was well not to make the incision through the deeper tissues so extensive as through the more superficial structures; thus made it was more easy to sew up, and when stitching the peritoneum above the umbilicus the stitches should pass through the posterior layer of the sheath of the rectus. When a tube which had been used for drainage was removed a stitch should always be put in, for if not there was risk of bowel becoming strangulated in the opening. As to the site of the incision, as a rule it should be over the centre of the lesion, but if the site of the lesion was unknown the abdomen should be opened by a median incision with excision of the umbilicus. Gauze if used for drainage should never come in contact with the small intestine. After removal of the septic focus recovery depended upon the reaction of the peritoneum. Washing out the peritoneum was a method for which they were indebted to Lawson Tait; it was the best method to use when the peritoneum had to be cleansed. Diffused extravasated contents should be washed out if little or no gross evidence of peritonitis existed. Washing out and drainage might prevent residual subdiaphragmatic and pelvic abscesses. Mopping out was useful, and the sponges should be wrung out of normal saline solution. In most cases neither washing nor mopping was needed. Murphy neither washed nor mopped, and yet his mortality was less than 4 per cent. in cases dealt with within 48 hours. For general septic peritonitis only pelvic drainage was required, the patient being put in the Fowler position. Intravenous injection of saline solution was sometimes of much value, but it should be limited to two pints. The dressing should be voluminous, for it retained the body heat. In the after-treatment Murphy's proctoclysis was of the greatest value. Morphine might be used if employed wisely after the operation, for it might enable the patient to sleep. Purgatives might sometimes be needed. Though early operation was the treatment of an overwhelming majority of cases of septic peritonitis, yet in some it might be a serious mistake. It was likely to be so when the infective focus could not be removed—for example, in pneumococcal and gonococcal peritonitis—and it might also be so after the infective focus had been shut off by a "natural cure."

Professor C. F. A. KOCH (Groningen) said that on most points all surgeons were agreed. All cases should be operated on as soon as possible, unless the case was moribund. He held that the recent improvement in the statistics was entirely due to the appendix cases, for if they excluded these the results were much less favourable. At Groningen the cases were often seen very late, when little could be done for them. It was important to teach both medical men and patients the importance of early operation. If the cause was known the incision should be made near the site of the lesion, and most commonly this was in the right inguinal region. He had employed both flushing and sponging and had not been able to find any difference between the results. He had devised a special drainage-tube which was not easily blocked. In general septic peritonitis two or three incisions for drainage should be made. He had found appendicostomy of great value for supplying fluid to the large intestine. The most troublesome symptom after operation was persistent vomiting, and this he had treated successfully by drainage of the stomach by a tube passed through the nose.

Mr. HERBERT J. PATERSON (London) said that it ought to be acknowledged that much of the recent improvement in results was due to the teaching of American surgeons. The policy of waiting was unfortunately of London origin, and led to harmful results. Pneumococcal peritonitis was very unfavourable, while the gonococcal form was very favourable, and was easily diagnosed. Some of the very chronic cases should not be operated on. He expressed himself as an uncompromising opponent of irrigation of the peritoneum, and he did as little mopping as possible. As to the anæsthetic, he never used chloroform, and he thought it might be quite enough to turn the scale the wrong way in doubtful cases. He considered that the evils of catharsis had been greatly exaggerated, and he gave calomel in small doses by the mouth.

Mr. G. P. NEWBOLT (Liverpool) expressed his surprise at the different statistical results of different surgeons. He objected to chloroform, preferring ether by the open method. It was true that some cases should not be touched, but it was very difficult to say which those cases were. He urged that the surgeon should always be on the look-out for a subdiaphragmatic abscess. A sixth of a grain of morphine after the operation did no harm and might give great comfort to the patient.

Mr. J. GRANT ANDREW (Glasgow) said that he operated in these cases by making an inch-long incision above the pubis, and by the material pouring out learned much as to the source of the peritonitis, and he often knew where to make the main incision. In cases of acute gangrenous appendicitis he excised the appendix, but he did not find it necessary to drain. He raised the head and shoulders of the patient and aspirated the exudation through the suprapubic wound.

Mr. H. GILBERT BARLING (Birmingham) considered that the name, general septic peritonitis, was often misused, and it should only be employed when the whole peritoneum was infected up to the diaphragm and down to the pelvis. The streptococcal infection was the most serious. The skin incision might need to be long when the abdomen was fat, but the deeper tissues need not be more widely divided than usually. The mechanical arrangement of the abdominal organs had much to do with the spread of sepsis. In his opinion both irrigation and swabbing had their uses, but no attempt should be made to remove solid exudate. He was opposed to a routine immediate removal of an appendix.

Dr. J. CRAWFORD RENTON (Glasgow) said that he made a suprapubic drainage opening in cases of ruptured gastric ulcer and also an opening in each loin, and irrigated until the fluid ran through clear. In removing a patient to a nursing home or hospital he kept him in a sitting position. He always gave extract of the pituitary gland to prevent shock. In bad cases the patient had only three or four whiffs of chloroform and then ether. If the patient was kept sitting up after the operation vomiting did not occur.

Mr. GARNETT WRIGHT (Salford) was opposed to removal to hospital of cases with severe peritonitis, though early cases might stand removal well. If the case was advanced the patient stood a better chance at home. In operation for general peritonitis it was important to do the minimum, only just enough to remove the cause. In most cases both washing and mopping were harmful, for they prolonged the operation. When the arrangements did not permit proctoclysis, the intermittent injection of salines into the rectum might prove useful. In all cases he favoured immediate operation.

Mr. C. P. CHILDE (Portsmouth) held that if the general condition of the patient was good the prognosis was good, for it showed that the power of resistance was good. The operation should always be done as quickly as possible. As soon as the peritonitis was recognised the patient should be put into the Fowler position and moved to the operating theatre in that position. A cotton-wool jacket diminished shocks. In some early cases it was not necessary to drain, but generally drainage was needed. Proctoclysis was of great value. If fluid was returned by the bowel it was generally because it was wrongly given. The abdomen should not be tightly bandaged. In acute cases vaccines were of no value, as they could not be obtained in time. In appendicitis he always operated as soon as he saw the patient.

Mr. E. STANMORE BISHOP (Manchester) held that all surgeons were agreed that the earlier the operation the better. He pointed out that the eye, the joints, and the peritoneum had many points of resemblance, and that just as rigidity of the muscles round a joint was often the first sign of joint disease, so rigidity of the abdomen was often the first sign of peritonitis. Morphine just before an operation diminished the amount of anæsthetic needed. As to drainage, commonsense must be the judge. If extensive extravasation of intestinal contents had occurred drainage must be required. It must not be forgotten that drainage tubes ceased to drain after 48 hours, as they became shut off by adhesions. The Fowler position was very uncomfortable, and a less sloping

position was much more agreeable, but the pelvis must be the lowest point.

Mr. LEONARD A. BIDWELL (London) laid stress on the value of the pituitary extract after operation as it restored intestinal peristalsis, and it might counteract the constipating effect of morphine. He never washed out the peritoneal cavity until full drainage had been provided in both loins and in the pelvis. He drained in all cases which had lasted more than 12 hours before the operation. He had a high opinion of the value of a rectal drain.

Mr. D. P. D. WILKIE (Edinburgh) claimed that the organism present was not of so much importance as the patient's resistance. He had found that in fatal cases of general peritonitis there was much distension of the upper part of the jejunum. He had tried the introduction of oxygen gas into the peritoneal cavity and he found that it improved the pulse and caused active hyperæmia of the peritoneum. He had also employed in seven cases the serum from a patient recovering from general peritonitis, and in two cases which seemed certain to end fatally the patients recovered.

Dr. F. MILNES BLUMER (Stafford) related a case of a boy on whom he had operated four times, and on several occasions much septic infection of the peritoneum had occurred and yet the boy had recovered. He considered that the peritoneum did not receive sufficient credit for its power of dealing with septic organisms.

Mr. MORISON, in reply, said that he could not define general septic peritonitis. He agreed that statistics as a rule were very unreliable, but those he had offered were trustworthy.

DERMATOLOGY.

WEDNESDAY, JULY 26TH.

President, Dr. JAMES GALLOWAY (London).

Before the meeting of the Section many cases of dermatological interest were shown, and among them the following may be mentioned:—By Dr. W. A. LOXTON: Multiple Lupus; Lupus Erythematosus; Seborrhœic Alopecia; Ichthyosis in a girl of 15, in whom it first appeared at the age of 5 years; and a case of Lupus of the Leg in a child 10 years old (it had been treated successfully with a 5 per cent. ointment of tuberculin). By Mr. E. GILBERT SMITH: A case of Lupus Vulgaris; two cases of Lupus Erythematosus; a very Typical Syphilitic Ulcer of the Leg; and a case of Erythema Circinatum. By Dr. A. DOUGLAS HEATH: Two cases of Favus in Sisters; Dystrophy of the Nails (possibly due to a Tinea); Adenoma Sebaceum; Lupus Erythematosus; and a case for Diagnosis, which may have been Mycosis Fungoides, or perhaps a Multiple Keloid.

The PRESIDENT opened the meeting with a few words, expressing the value of the subjects about to be discussed and the importance of the exhibition of clinical cases.

Dr. T. COLCOTT FOX (London) then opened a discussion on

The Vascular Disorders of the Skin and their Relation to Other Morbid States.

He gave a *résumé* of the etiology and pathology of the three great groups of symptomatic eruptions in which the blood-vessels are specially involved—namely, the erythemata, purpura, and some phases of urticaria. He ascribed these skin manifestations to the influence of toxins, derived from various sources, circulating in the blood. In many of these conditions a positive diagnosis was at first impossible, yet the answer to the question whether an eruption was a manifestation of a specific fever such as scarlet fever or merely an erythematous condition was of the greatest importance. The evidence in favour of the theory that lupus erythematosus was of toxæmic origin was then discussed. He agreed that in a certain proportion of the cases some tuberculous lesion could be found in the body, but this was often nothing more than a tuberculous gland, and on the other hand it was certain that in many cases not the slightest evidence could be produced in favour of the presence of tuberculous disease either before or after the appearance of the erythematous lupus.

Sir WILLIAM OSLER (Oxford) dealt with those erythematous conditions which were associated with, and probably gave rise to, abnormal visceral conditions. The very same cause might at different times in the same individual produce different lesions, but lesions belonging to the same group of skin affections. Gastric or renal complications might occur, but the latter were much more serious than the former. Even acute nephritis might be seen. Thoracic complications were also met with, such as endocarditis and pleurisy. Sometimes cerebral complications such as hemiplegia and coma had been seen.

Sir MALCOLM MORRIS (London) divided the erythemata into two groups—those which were transient and those in which the course was prolonged. In many of the transient cases the diagnosis was extremely difficult, such as erythema scarlatiniforme, and time was necessary for diagnosis; in such cases it was advisable to isolate the case and to say that as yet a diagnosis was impossible. The time of the empirical treatment of these cases of erythema by aperients had gone by. The explanation of the origin of many of these cases had to be sought in idiosyncrasies, and idiosyncrasies were very difficult to explain. He had seen prolonged systematic treatment with a vaccine of bacillus coli sometimes prove of benefit.

Mr. A. EDDOWES (London) related a case in which a man who had always been in good health developed an eruption of urticarial type after drinking a glass of ale, and also a case in which a similar result had followed taking shrimps.

Dr. LESLIE ROBERTS (Liverpool) described the classification of these skin affections, and expressed the opinion that lupus erythematosus was due to disease of the lymphatic glands.

Dr. J. H. SEQUEIRA (London) distinguished clearly between the chronic and acute forms of lupus erythematosus.

The PRESIDENT of the Section related a case of acute lupus erythematosus in which no cause could be found, and there was no suspicion of an excess of alcohol. The patient remained under observation for a year, and it was afterwards discovered that she was an alcoholic. He had seen some cases which were associated with endocarditis.

DISEASES OF CHILDREN.

WEDNESDAY, JULY 26TH.

President, Dr. OTTO J. KAUFFMANN (Birmingham).

The PRESIDENT having opened the business of the Section with a few introductory remarks,

Dr. H. D. ROLLESTON (London) read a paper on the

Diagnosis, Prognosis, and Treatment of Tuberculous Peritonitis.

He said that tuberculous peritonitis had been divided into:—1. Acute Forms: (*a*) miliary form, part of generalised tuberculosis with abdominal pain, vomiting, and tympanites; (*b*) miliary tuberculosis of the peritoneum and pleuræ; and (*c*) miliary tuberculosis around the cæcum resembling appendicitis. 2. Chronic Forms: (*a*) ascitic; (*b*) caseous, ulcerating, or suppurative; (*c*) fibrous; and (*d*) localised. He said that diagnosis was most difficult in the earliest stages. The disease was sometimes latent, and only discovered at an operation performed for a hernia, which was often the first evidence of tuberculosis of the peritoneum, as it was forced out by the increased abdominal pressure due to ascites. The diagnosis was most difficult in young babies, a distended abdomen being comparatively common as the result of gastro-intestinal catarrh. The onset appeared to be acute in about a third of all the cases, and might at first strongly suggest appendicitis. In acute cases due to generalised tuberculosis the aspect might closely resemble enteric fever. Acute cases might also be readily confused with pneumococcic peritonitis. Ascites in children was so generally due to tuberculous peritonitis that its presence was highly suggestive of that condition. Hepatic cirrhosis being so rare in children cases of that disease were occasionally mistaken for tuberculous peritonitis. Other conditions causing ascites in children were late hereditary syphilis, obliteration of the hepatic veins (very rare), simple chronic inflammation of the peritoneum, malignant disease of the peritoneum or mesenteric glands. The prognosis of tuberculous peritonitis was, generally speaking, better in children than in adults. The prognosis was better in ascitic and fibrous cases than in caseous and ulcerative cases, and as a rule the more acute the onset the worse the prognosis. The presence of active tuberculosis elsewhere made the outlook grave, and the prognosis was also bad in mixed infections, shown by a continued temperature, night sweats, and definite leucocytosis. Treatment was considered

under the following heads: I. Hygienic Treatment. Absolute rest in bed, as far as possible in the fresh air and in the sun. Margate was specially recommended. II. Medicinal Treatment. Not so important. Iodine was used in the forms of iodoform, syrup of iodide of iron, and hypodermic injections of iodine with iodide of potassium and guaiacol. Salicylate of bismuth or salol might be tried, and opium for obstinate diarrhœa. Locally mercurial ointment rubbed into the abdomen by a bandage might be tried, and iodine or iodoform might be used in the same way. The action of the bandage, besides assisting absorption of the drugs, was important in securing rest to the abdomen. The diet should be nourishing and largely proteid, with the addition of cream and fatty food, including cod-liver oil. Starchy and vegetable food should be avoided, as liable to cause flatulence. III., Vaccine Treatment. There was much difference of opinion as to its efficacy. Wright and Latham recommended it, but Still found it of no effect, and his (Dr. Rolleston's) experience of it was doubtful. IV., X rays had been given a fair trial, but did not appear to be of any real therapeutic value. V., Surgical Treatment. Operation was contra-indicated in general or widespread tuberculosis, in infants under 12 months of age, and in patients with signs of pulmonary tuberculosis. It was unnecessary in the fibrous and adhesive forms, in the absence of any urgent symptoms of intestinal obstruction, and it was necessary in cases of abscess formation and in intestinal obstruction. It had been supposed that operation reduced the feeble vitality of the peritoneal tubercles so that they underwent death and involution. More recently the explanation was put forward that peritoneal tuberculosis being a local infection the opsonic index of the ascitic effusion was lower than that of the blood; hence after removal of the ascites there occurred a fresh effusion which was of a higher opsonic index, and therefore had a curative effect on the local tuberculous process. If this was true, simple paracentesis should be as effective as laparotomy, but the advantage of laparotomy was that a local focus of tuberculosis which might give rise to reinfection and relapse after partial or apparent cure might be thus detected and removed. It was generally agreed that the ascitic cases did well whether operated on or left alone, but as some cases began as ascites and went on to ulcerative stages, early laparotomy might prevent these sequels. Statistics on these points would be of value.

Professor G. A. WRIGHT (Manchester) said that pneumococcic peritonitis appeared to be rare in Manchester. It might be very difficult, without bacteriological examination, to distinguish it from the tuberculous disease. In his experience an acute, severe, generalised peritonitis without definite local cause, accompanied by rapid and great distension, great pain and tenderness with high fever and diarrhœa, and usually ending fatally, was probably pneumococcic. A localised abscess might be due to a breaking-down tuberculous gland, or to typhoid or appendicitis, or might be pneumococcal. The round, tense, distended, shiny abdomen, with full veins, fluid in the flanks and possibly localised collections elsewhere, with resonance round a protruding umbilicus, and all these conditions without pain, tenderness, or fever, was in all probability tuberculous. The diagnosis was still more certain if localised hard masses could be felt. The three most constant conditions were distension, pain, and the presence of a local palpable mass. Elevation of temperature appeared to exist in only a small minority of cases. The diagnosis might be very difficult and only to be certainly made by operation. As to the ultimate results of laparotomy and its value as a means of treatment, he summed up as follows: 1. That probably not much more than half the cases would live to grow up, for of those who recovered for a time a large proportion died from tuberculosis in some form within a few years, though the immediate operative mortality was small. 2. There was no hard-and-fast line between ascitic and plastic cases either as a matter of morbid anatomy or of operative treatment or of mortality. But operation was simple when there was much fluid and might be impossible in obliterative cases. 3. Tuberculous mesenteric glands might be safely removed and in some cases certainly should be removed.

Dr. C. H. MELLAND (Manchester) said that he formerly used to call in the aid of a surgical colleague in these cases, but that he had latterly relied more on medical treatment, diet, hygienic influences, and the use of Scott's dressing or a bandage to the abdomen, with equally satisfactory results.

Mr. W. MCADAM ECCLES (London) said that there were at least five reasons why the surgeon was inclined to advise operation in these cases: 1. Incision was safe, far safer than mere paracentesis. 2. Exposure of the peritoneum confirmed diagnosis. 3. Laparotomy might, and frequently did, expose a removeable tuberculous focus. 4. Opening the abdomen would allow of the wider application of remediable substances. 5. Operation necessitated subsequent rest with the abdomen firmly bandaged.

Mr. GEORGE HEATON (Birmingham) divided cases of tuberculous peritonitis into three main classes from the surgical point of view: 1. The fibrous adhesive forms, which should not be operated on. 2. Ulcerous forms. Here active surgery was contra-indicated, or should be limited to the opening of any localised abscesses which might form. 3. The ascitic variety, in which laparotomy was indicated.

The PRESIDENT illustrated one of the difficulties of diagnosing tuberculous peritonitis by exhibiting a specimen of extensive subserous sarcoma of the peritoneum which had been mistaken for tubercle. In his opinion the per cutem administration of mercury ointment was the most valuable therapeutic agent, and he drew attention to its effect in slightly diminishing the number of leucocytes.

Dr. W. E. HUME (Newcastle-upon-Tyne) read a paper on

General Œdema Following Gastro-enteritis in Children,

based on 13 cases he had observed in infants free from cardiac or renal disease. The treatment employed was the subcutaneous injection of adrenalin chloride solution, and was successful. He thought the condition might have been due to fibrosis of the suprarenal glands.

Dr. ROLLESTON said he had seen such cases, and that, though rare, when they did occur they did so in small groups. Presumably the condition was toxic. Possibly œdema of a similar kind in the kidneys might induce albuminuria So some cases of general œdema with albuminuria might be of this nature and not primarily renal.

Dr. R. H. MILLER (London) asked if the medullary changes were not found in the suprarenal glands of marasmic children dying without œdema.

Dr. ANN ELIZABETH CLARK (Birmingham) said that cases of general œdema in children under three years of age were not rare, and in her experience recovery was usual.

The PRESIDENT thought that these cases would be observed in greater numbers when attention had been called to them, as by Dr. Hume's remarks. In his opinion the morbid phenomena might be due to a vaso-motor paralysis, produced by a toxic material of intestinal origin. The good effect of suprarenal extract might be the direct result of increasing the blood pressure, which was so extremely low when the patients first came under observation.

Dr. HUME briefly replied.

Dr. LEONARD G. PARSONS (Birmingham) read a paper on

Infantilism Associated with Chronic Interstitial Nephritis.

Its purpose was, he said, to direct attention to a class of case which had apparently escaped general recognition. He could only find one case described in the literature—a living patient shown by Dr. H Morley Fletcher at the meeting of the Section for the Study of Disease in Children of the Royal Society of Medicine last March. Infantilism strictly meant the non-appearance at the proper time of the primary sexual characteristics or of the associated secondary sexual characteristics, but the term was frequently applied to children who were backward in bodily development. Dr Parsons's case was a girl aged 6½ years, who had been suffering from wasting and excessive thirst. In bodily and mental development she was like a child of three years old. There was œdema of the legs and face and some evidence of broncho-pneumonia. The urine was pale in colour, acid, specific gravity 1010, and showed a faint trace of albumin, but no casts, sugar, or cells. Death occurred on the seventh day after admission. Post mortem the kidneys were found extremely small, and together weighed less than an ounce. Microscopically there was a most extensive general fibrosis of cortex and medulla, more marked than ever obtained in the most advanced cases in adults Speculation on the cause of this condition of infantilism was fascinating Bradford had shown that removal of two-thirds the weight of the kidneys in animals produced polyuria and wasting. He was inclined to attribute his results to the diminution of an internal secretion of the kidneys. This would put infantilism associated with granular kidney on all fours with cretinism. On the other

hand, the condition might be due to the presence of a chronic disease which hindered the proper carrying out of the functions of the body.

Dr. JAMES E. H. SAWYER (Birmingham) said that he had published 55 cases of chronic interstitial nephritis. In none of these had he found infantilism, meaning mental backwardness, but in most of the cases there was great backwardness in growth.

Dr. ROLLESTON considered that the easiest explanation of Dr. Parsons's case was that both the infantilism and the renal changes were due to congenital syphilis.

After some remarks from Dr. MILLER and the PRESIDENT, and a brief reply from Dr. PARSONS, the business of the session closed.

ELECTRICITY AND RADIOLOGY.

WEDNESDAY, JULY 26TH.

President, Dr. HUGH WALSHAM (London).

The proceedings in this Section were opened by a short address from the chair by the PRESIDENT, who drew attention to the progress made in medical electricity and radiology during the last 25 years, and made special reference to the work done in St. Bartholomew's Hospital, first by the late Dr. W. E. Steavenson and secondly by his successor, Dr. Henry Lewis Jones. It was specially noteworthy that though a section on these subjects was refused by the British Medical Association for many years it seemed that now it had become as much a part of the regular programme as any other. This was cause for great satisfaction; it should act as a stimulus to their work, if any were needed, and would do much to improve the position of medical electricity and radiology in the eyes of the profession and the public alike.

Professor Sir OLIVER LODGE (Birmingham) gave an address

On the Conveyance of Electricity through Solids, Liquids, and Gases.

This interesting and important subject was treated from the point of view of the most modern theories. The transfer of electricity is by means of electrons carrying definite negative electrical charges, and in a metal these carriers or ions flow through it, because the electrons composing the metal are moveable. Thus the transference in a solid is *through* matter, with a rapidity comparable to that of ordinary light—i.e., about 1/20th of the speed of light. In the case of liquids, the electrolyte is made up of groups of ions in which the electrical charges are exactly balanced. The current being turned on, there is a shifting of the ions owing to the extra electrical charges to be transmitted, the positive ions moving with the current and the negative ions against the current. Both positive and negative ions take part in the transference, which in this case takes place *with* matter. Coming to the consideration of the conveyance of electricity through gases, it is found that it takes place mainly through the agency of positive electrons. These travel very slowly—about 1/20,000th of the speed of light; but because they are very numerous they carry most of the current, and also they travel *free of matter*. Radiation is explained as being due to the acceleration of the electron, which acceleration may be positive or negative, and merely altered in direction. An electron, suddenly hurried on, retarded or made to describe a curve, technically undergoes acceleration, and radiation is a result. In an ordinary lamp filament electrons are rushing about with great rapidity—i.e., are in a state of constant acceleration. The X ray is a result of suddenly stopping an electron or group of electrons, giving rise to solitary impulses—the "whip-crack" of radiation. This very interesting and instructive address was brought to a close by a description and demonstration of the action of a form of valve tube invented by himself which possesses a high efficiency, and by its assistance a more or less permanent charge could be given to a Leyden jar.

Dr. H. LEWIS JONES (London) opened a discussion on

Ionic Medication and the Theory of Ions

by saying that Stephane Leduc had done a great deal to clarify the ideas of medical electricity by his writings upon the rôle of ions in medical work. He had taught them how to apply large currents with a minimum of discomfort, and how to approach the treatment of a number of morbid conditions by electrical methods. The shock of the induction coil current, the sting of the continuous current, and the painlessness of high-frequency currents were all functions of ionic movement. The latter, by the rapidity of its oscillations, produced insufficient movement of ions to disturb the chemical equilibrium of the nerve and muscle, and therefore caused no shock or pain unless it were very highly concentrated. Dr. Lewis Jones considered that evidence was still needed as to the penetration of ions, not so much whether they penetrated or not as whether they could be made to penetrate far enough for practical purposes, as, for instance, in the treatment of joint affections. Perhaps the observed good results depended upon the commotion of the natural ions of the tissues rather than upon the introduction of extraneous ions from without. He referred to the useful results of ionic medication in facial neuralgia, and suggested that facial paralysis should also be treated by ionic applications to the trunk and main branches of the nerve, and considered that he had seen good results follow this mode of treating facial paralysis. He hoped to hear the personal experiences of individual workers and considered that ionic medication was likely to render useful help to almost every branch of practical surgery and medicine. At the close of his remarks a demonstration was given of the rapid transference of ions through several thicknesses of moistened parchment paper.

A very free and full discussion followed, in which all of those who took part paid a high tribute to the excellent work on the subject that had been done by Dr. Lewis Jones.

Professor WERTHEIM SALOMONSON (Amsterdam) asked if it were possible to determine how much of an alkaloid were introduced into the tissues under any given set of conditions, and if any work had been done in the use of the poisonous alkaloids introduced in this way.

Dr. REGINALD PRATT (Leicester) spoke of the good results he had had in cases of chronic mastitis and chronic cystitis by the introduction of zinc ions. The latter was treated by means of a special form of zinc rectal electrode arranged for easy introduction and protection of the muco-cutaneous margin, which was very sensitive to electrical currents.

Dr. R. W. MCKENNA (Liverpool) bore testimony to the great value of ionisation in dermatology and he described a method suggested by his partner, Dr. G. G. Stopford-Taylor, for increasing the action of the zinc ionisation. This was to wipe over the nodules with liq. potassæ, which had the effect of rapidly dissolving off the gelatinous covering. After washing with saline solution or distilled water the ionisation was commenced and continued for about 20 minutes. This was repeated after 14 days if necessary. He claimed a result superior to that of any other method, not excepting that of Finsen.

Dr. J. METCALFE (Bradford) also found ionisation of great value in superficial disorders.

Dr. L. W. BATHURST (London) said that, as the result of some experience of ionisation, there were some points which he should like to emphasise. With regard to the all-important matter of technique, he had followed closely the methods of Leduc, using pads equal to not less than 16 thicknesses of lint thoroughly saturated with the solution employed. He had tried many forms of electrode, but knew of none better than a particular gilt wire gauze with fine meshes sold for the trimming of ladies' hats under the trade name of tricotine. Another excellent electrode was a pot-cleaner made of strands of copper-wire. Before using these he had employed thin metallic sheets which could be bent and moulded, but much less perfectly, to the shape of the part. Dr. Bathurst regarded the strength of current as being of great importance, relatively strong currents being, he thought, essential. But this must vary in accordance with: (1) The size of the electrodes; (2) the region of the body under treatment; (3) the sensitiveness of the patient to pain; (4) the reaction of the individual's skin, for skins seemed to vary very much in their reaction to ionisation; and (5) the ions employed. Much stronger currents, for example, could be used with salicylic ions than many others. As a rough index of the current he was accustomed to employ, he should consider in the treatment of a large joint, such as a knee, a current of 30–40 ma. as a minimum, 50–70 ma. as average, and 100–150 ma. as exceptionally strong. In his case the current was induced gradually, as much as a quarter of an hour being occupied in attaining a maximum. In this connexion he wished to speak particularly of the reaction of the skin, which might be only a slight redness or might amount to destruction of tissue. This reaction was in

accordance with the factors just noted and with the strength of the current. The important points for the avoidance of burns were thickness of pads, and even pressure of the electrodes. It was for this reason he gave up the solid sheets of metal in favour of those which could be evenly applied and held in position by a bandage. Caution as to the strength of current must be had in each case, for he had known burns to occur with currents of even 20 ma., especially if any abrasion of the skin be present. It was well in these cases to cover such abrasion with a small piece of some non-conductor. The duration of treatment had been from 10–30 minutes and in hospital cases twice a week; but experience led him to think that more frequent treatment was of great advantage. The strength of his solutions had been 1 per cent. throughout. Those mostly used were: (1) Sodium chloride for chlorine ions; (2) sodium salicylate for salicylic ions; (3) zinc chloride for zinc ions; and (4) potassium or lithium iodide for iodine. Chlorine ions had been used chiefly for joints stiffened with fibrous thickening, superficial scars, and keloid growths. The most satisfactory results had been shown in this class of case. A stiff and painful shoulder-joint coming on after childbirth, which had resisted the action of drugs given by the mouth and massage, cleared up completely under chlorine ionisation. An extensive scar of the face with keloid growth showed very great improvement with six weeks' treatment; and a hand from which a supernumerary finger had been removed, and in which the adjoining fingers were useless owing to a large amount of scar tissue, regained complete use of the fingers by chlorine ionisation. Salicylic ions had been used chiefly in (*a*) rheumatic affections of joints and rheumatoid arthritis, and (*b*) in various forms of neuralgia and neuritis. In the joint affections great relief was generally experienced, and where no active infection was present marked improvement of the physical signs could be noted. In neuralgias where no auto-intoxication was in progress great improvement might be noted. A man who for 20 years had had trigeminal neuralgia said after his second treatment that he had known no such relief in that time. In an elderly lady with the same affection, which had been getting progressively worse, so that morphine injections had been resorted to at frequent intervals, two such injections only had been necessary in seven months since ionisation was commenced. The spasms of tic douloureux also had been seen to disappear after three or four applications. Zinc ions Dr. Bathurst had used chiefly for chronic ulcers and sinuses. A large ulcer of the heel following thrombosis of the leg after parturition had left a woman of 25 bedridden in spite of excision of the ulcer and treatment as an in-patient. She had not put her foot to the ground for eight months when zinc ionisation (20 ma. for 15 minutes) was applied to the ulcer, which was about the size of a crown-piece. This treatment was repeated a week later, and the ulcer was completely healed in three weeks. These and other results had encouraged him very much in the treatment by ionisation, the more so when he considered the unpromising cases which formed the bulk of his hospital patients. But he thought the relief given in the most distressing forms of neuralgia, the effect on scar tissue, especially if near the surface, and the almost magical effect on chronic ulcers and sinuses more than justified the plea for an extension of this form of treatment.

Dr. N. S. FINZI (London) made an interesting statement as to how one could tell if any particular ion was penetrating deeply. If an ion was not one to penetrate deeply it was usually because it accumulated near the surface, forming compounds with the constituents of the tissues, and these formed a barrier and thus increased the electrical resistance. Thus, if the milliampèremeter be watched the hand at first slowly rose, stopped, and then receded. If it was a deeply penetrating ion the hand of the instrument slowly rose, and later might become stationary, but did not recede.

Dr. A. H. PIRIE (London), Dr. J. DELPRATT HARRIS (Exeter), Dr. C. F. BAILEY (Brighton), Dr. E. REGINALD MORTON (London), and Dr. MAURICE R. J. HAYES (Dublin) also took part in the discussion.

In his reply Dr. JONES stated that they were not yet in possession of any reliable means of determining the actual amount of any ion introduced in this way. In the treatment of rodent ulcers he admitted that he always selected his cases, as the method was not reliable in those old-standing cases where it was extending more or less deeply, but in suitable cases the results were all that could be desired. With regard to the use of strong solutions for ionisation, 10 per cent. or more, he could not see how these could be of any real advantage, as there were far more ions present in the usual 2 per cent. solution than could possibly be made use of in any ordinary application.

Dr. BAILEY read a paper entitled

Fractures Undiagnosable except by X Ray Examination.

He showed how an X ray examination removed all doubt as to the existence or non-existence of a fracture in a large number of doubtful cases, and also revealed the existence of fractures in structures not previously described, such as that of a transverse process of a lumbar vertebra from muscular action. The paper also went on to show that there were very few cases of more or less severe injury where it was advisable in the interests of both patient and doctor to omit a proper X ray examination. In this most radiographers of extensive experience will heartily agree, for however skilful may be the clinician errors of diagnosis are bound to occur, and an X ray examination provides an invaluable safeguard. In doing this it was very properly pointed out that we never should be satisfied with a screen examination, as fractures without displacement were very seldom detected in this way, and in all cases a stereoscopic radiograph would add sufficient to our knowledge to make it well worth the trouble of doing. These points were well demonstrated in the radiographs with which the paper was illustrated, especially in cases of injury about the wrist.

Dr. J. A. CODD (Wolverhampton) gave instances of cases where fractures were only discoverable by X-ray examination.

Dr. PIRIE drew attention to the fact that while the stereoscopic method was the best for some parts of the body, in others, such as the ankle-joint, an antero-posterior and lateral view gave the most valuable information.

Mr. F. EMRYS-JONES (Birmingham) and Mr. J. HALL-EDWARDS (Birmingham) stated that the X ray method of examination had led to superior results in treatment.

Dr. MORTON, while wishing to discourage anything in the nature of slackness in making a clinical examination, said that in these days a high standard of perfection was demanded, and referred to the Workmen's Compensation Act and other circumstances. He considered that every case of fracture ought to be radiographed—the screen was not accurate enough—and it would be found that in every case it would add something to their knowledge of the case, which could never be too great, in the interests of the patient. He thought that the medical man who treated fractures without X ray examination in these days, especially if in the vicinity of a joint, was going out of his way to seek trouble, and that he must not be surprised if he found it.

Dr. J. METCALFE (Bradford), Dr. HAYES, and Dr. HARRIS all bore testimony to the facts brought out by the reader of the paper, and Dr. BAILEY replied.

Finally, Dr. PIRIE showed a new form of Stereoscope.

LARYNGOLOGY, RHINOLOGY, AND OTOLOGY.

WEDNESDAY, JULY 26TH.

President, Mr. FRANK MARSH (Birmingham).

The PRESIDENT, in a brief address, after welcoming the visitors from over the seas, mentioned that Birmingham possessed one of the oldest established hospitals in the kingdom for the special treatment of diseases of the throat, nose, and ear. It was established 70 years ago and contained 41 beds for the treatment of in-patients. Unfortunately there was no chair or provision for teaching these special subjects in the University. That might be due to there being no predominance of these diseases in Birmingham, partly owing to the high sea-level, and partly to the absence of any industry especially conducive to their development. Referring to the Insurance Bill, specialists, he said, probably would not be much affected. The State might have to subsidise special hospitals which might come under State or municipal control. If so, provision would have to be made for the medical staffs on the hospitals, and a representative committee of hospital staffs in that case should be formed. The triology of laryngology, otology, and rhinology being united again in one section he thought

was satisfactory; if separated then rhinology might prove itself to be the predominant partner. He referred to the Oxford diploma in ophthalmology. Specialists in their own triology possibly might one day adopt a similar course in view of the inadequate teaching of the subjects in the universities. There was, however, the danger of such a diploma in future being granted to persons without a sufficiently high standard of knowledge of general medicine and surgery.

Dr. J. DUNDAS GRANT (London) and Dr. P. WATSON-WILLIAMS (Bristol) opened a discussion on the

Treatment of Laryngeal Tuberculosis.

Dr. DUNDAS GRANT confined himself mainly to the consideration of various local etiological factors and methods of treatment. Amongst the causes of localisation of the disease in the larynx he mentioned irritants, including under these excessive use and abuse of the voice, urging maintenance of silence for three or four months. Marked improvement followed even whispering if a genuine whisper were adopted. Useless injurious coughing should be controlled, and if possible a voiceless cough should be acquired. Tobacco smoke and irritating vapours were also factors. Nasal obstruction and nasal discharges were predisposing causes. Therapeutic measures were to be founded on the treatment of these irritants. Continuous antiseptic inhalations acted beneficially by checking cough. The removal of nasal obstruction and pathological secretions from the nasal cavities was important and yielded good results upon the laryngeal disease. He spoke of the beneficial results following upon the use of the galvano-cautery puncture. For the relief of important symptoms, such as severe dysphagia, local sedatives administered in the form of powder by means of a tube were advised. If the dysphagia were extreme recourse might be had to alcoholic injections into the superior laryngeal nerve. The regurgitation of liquids might be overcome by Wolfenden's method, or by the use of a feeding tube whilst the patient was lying on the back on the floor. In advising and carrying out local treatment regard and caution had to be paid to the patient's general condition and temperament.

Dr. WATSON-WILLIAMS considered, although there had been several discussions held on the subject within recent years, that the last word had not been said. Reference to the pathogenesis of tuberculous affections of the larynx, and the differentiation of clinical varieties afforded prognostic importance from the therapeutic standpoint. Sanatorium treatment alone without local treatment at times yielded remarkable results and a lasting recovery. Regulated exercise and rest of the voice were amongst the factors in the recoveries obtained through sanatorium treatment. A dry climate and a high altitude had no beneficial influence on the larynx. Nasal obstruction should be treated. Tuberculin treatment was useful in certain cases. He had known tuberculin relieve a patient's sufferings for a remaining eight days of life. Fibroid granulations and tuberculomata in the interarytenoid region and along the ventricular bands might be removed if producing aphonia, and the condition of the lungs permitted of such surgical treatment. Dr. Watson-Williams demonstrated a series of lantern slides illustrating the points he had dealt with.

Mr. G. SECCOMBE HETT (London) exhibited and demonstrated a collection of specimens of parts removed from cases of laryngeal tuberculosis. In a series of 30 cases he had amputated the epiglottis in 24, and the collection included 12 of these and part of the arytenoid region from another case. Relief had been immediately afforded. He advised some traction being put upon the epiglottis to ensure it being amputated down to the stump, as he had found when this had not been done it had been necessary subsequently to remove a further portion.

Dr. W. JOBSON HORNE (London) based his views of the surgical treatment of laryngeal tuberculosis upon his investigations into the pathogenesis of the disease. He summarised his conclusions as follows: 1. That when the larynx is infected with tubercle the disease is already established in the lung. Primary tuberculosis of the larynx is a negligible quantity. 2. That the disease in the larynx progresses *pari passu* with that in the lungs; when the disease in the larynx presents ulceration that in the lungs has advanced to cavitation; and *vice versâ*, when that in the lungs has become arrested, then that in the larynx heals. 3. That when the disease in the lung is confined to the pure miliary form the larynx is not infected. 4. That infection of the larynx takes place by the sputum from the lungs through the opening of the ducts in the laryngeal mucosa. 5. That the regions of the larynx more prolific with glandular structure are more vulnerable to tuberculosis. 6. That the regions of the larynx covered with columnar-cell epithelium are more prolific with glandular structure, and therefore are more vulnerable to the disease than the parts covered with squamous epithelium. Hence, the central part of the vocal cord itself becomes involved only by continuity of the disease and offers the greatest resisting powers. 7. That the rational treatment is to preserve the mucous membrane covering the larynx and to induce a metaplasia of the columnar mucosa into the squamous variety. That is to induce the condition of pachydermia laryngis. This is the natural process of arrest of the disease. The natural process of arrest can be induced and imitated by absolute rest of voice and the submucous puncture with the galvano-cautery point. These conclusions were based upon a series of specimens; photographs of many were exhibited in the loan museum formed in connexion with the meeting, and were fully described in the catalogue. Dr. Jobson Horne urged the routine and the early examination of the larynx in all cases, and especially doubtful cases of phthisis even when there were no pulmonary signs. Thereby extreme surgical measures could be avoided.

Dr. E. F. TREVELYAN (Leeds) agreed that patients should be taught how to cough. He did not agree with continuous antiseptic inhalations except in cases of bronchitis. He had not seen good results from tuberculin; those who got such a high percentage of recoveries must get different material to work upon. Patients with dysphagia could bolt eggs.

Dr. S. MORITZ (Manchester) spoke from his experience at a hospital that was exceptional, inasmuch as it existed for the combined purposes of treating consumption and diseases of the throat. He regarded the unbroken mucous membrane of a larynx infiltrated with tubercle as a *noli me tangere*. The general condition of the patient must be good to permit of the removal of parts of the larynx by surgical measures. Surgical treatment was liable to cause a small ulcer to become a larger one.

Dr. ANDREW WYLIE (London) was in favour of a masterly inactivity in the treatment of laryngeal tuberculosis. Moist climates—open moorland—as in Cornwall, Yorkshire, or Scotland, were better than Switzerland.

Dr. DAN MCKENZIE (London) was also in favour of considerable inactivity. He advocated removal of nasal obstructions and free nasal respiration.

Dr. L. H. PEGLER (London) also supported the removal of nasal obstructions.

Dr. G. WILLIAM HILL (London), speaking generally, was opposed to operations for nasal obstructions in patients with consumption.

Dr. N. C. HARING (Manchester) was opposed to the surgical removal of parts of the larynx except in cases of circumscribed lesions; then operate for relief and not for cure. With tuberculin he had seen the larynx getting better, whilst the pulmonary lesion was getting worse—an argument against the surgical treatment of the larynx.

The PRESIDENT summed up the discussion. The Section, he concluded, was in favour of conservative methods, such as silence, intra-laryngeal injections, and the galvano-cautery puncture. Operations could be done on the nasal passages in selected cases. Tuberculin had its place, but was not much advocated. Individual conditions must be the guide to the choice of treatment.

Dr. DUNDAS GRANT and Dr. WATSON-WILLIAMS replied, and Mr. SECCOMBE HETT also briefly replied.

Dr. HILL read a paper entitled

Dysphagic Conditions Wrongly Attributed to Œsophageal Spasm.

The paper was based upon anatomical considerations as well as upon clinical observations. He maintained there was no such thing as a primary idiopathic spasm of the œsophagus in the commonly accepted sense of the term.

The PRESIDENT was also of the opinion that caution should be exercised in the use of the term idiopathic.

Dr. JOBSON HORNE agreed generally with the views expressed and cited a case in support of these views.

Dr. MCKENZIE pointed out that any irritation might set up

a spasm of the œsophagus and the spasm in turn might bring about dilatation of the œsophagus.

Dr. A. BROWN KELLY (Glasgow) inquired, if dysphagic conditions could not be attributed to œsophageal spasm, how death from starvation following dysphagia, in which post mortem no disease was found in the œsophagus, could be accounted for.

Dr. DUNDAS GRANT was not disposed to throw away altogether the theory of functional spasm. By doing so the patients might be made unhappy.

Dr. PEGLER cited the case of a lady now aged 80, who for 30 years had not been able to swallow solid food. Malignant disease after that length of time he considered should be excluded and the case regarded as one of functional spasm.

Dr. HILL replied, maintaining his original contentions.

MEDICAL SOCIOLOGY.

WEDNESDAY, JULY 26TH.

President, Dr. GEORGE REID (Stafford).

The PRESIDENT, in his opening remarks, spoke of the wide field covered by the term "medical sociology"; it was, indeed, the pivot of the whole social movement, for the nation's health was the crux of national prosperity, and with a low health standard social progress was impossible. Who, then, were better fitted to speak authoritatively on social questions than medical men? The vital factor in all national progress was public opinion; unless the people were roused and their sympathy secured, all agitation was futile. That the nation was becoming more alive to the importance of the health factor in securing and maintaining its prosperity and social welfare was shown by recent legislative enactments; for example, the Notification of Births Act, the Education (Administrative Provisions) Act, and the Housing and Town Planning Act, not to mention the National Insurance Bill now before Parliament. In this measure the legislature proposed to tamper with the interests of medical men to an extent that would practically ruin a large section of the hardest workers in the profession. Nevertheless, if reasonable amendments could be secured in the Bill, medical men should do their utmost to make invalidity insurance a success. The scheme could not be carried through without their coöperation, and unless they received fair treatment they must not hesitate to exercise their veto.

Mr. J. SMITH WHITAKER, medical secretary to the Association, opened a discussion on

The Medical Aspects of the Poor-law,

with special reference to State insurance and the provision of better medical attendance on the poorer members of the community. Mr. Smith Whitaker, in an endeavour to indicate the various parts of the problem in their relation to one another and to the broader social problems of the hour, pointed to two directions in which public opinion had been tending. One was the appreciation by the whole community of the fundamental importance of the health of each individual, and the other the greatly increasing tendency to look to the machinery of the State as the instrument for effecting social reform. They could trace the sequence of events from the Commission on the Poor-law of 1832 to the Report on Physical Deterioration. That led to the appointment of the Royal Commission on the Poor-law, which in its turn was responsible for the inception of the National Insurance Bill. Looked at from the purely economic side, individual health, or the lack of it, seriously affected national well-being. The person who could not obtain proper medical attendance was liable to become a charge on the community, and the community also suffered from the loss of his labour. Analysing the main causes of sickness they were found to be due not only to absolute lack of means to provide necessary medical attendance, but also to defective social organisation which did not enable the individual to apply such resources as he possessed to the best advantage. In this connexion Mr. Smith Whitaker condemned the too narrow definition of the word "destitution" that had been observable in the discussion of both the Majority and Minority Reports of the Royal Commission. Destitution was a relative term; it did not depend upon whether a person had money, but whether his resources were equal to satisfying the needs of the moment. A man in need of institutional treatment was destitute if no hospital was available and he could not afford an operation or a nursing home. Destitution might consist in the want of ready money, and that was where the principle of insurance against sickness came in. As to the method of dealing with the difficulty, the proposal in the Minority Report to adopt a system of charge and recovery might be dismissed as impracticable. The medical profession felt strongly—not in its own but in the public interest—that individual medical attendance would best be given on the lines of private practice, and that the employment of the whole-time officer was not a sound principle. That was the foundation of the whole of their objections to the Minority proposals and also to some of the possibilities of the Insurance Bill. Mr. Smith Whitaker concluded by re-stating in detail the medical objections to the Bill.

Dr. F. E. WYNNE (Leigh) read a paper on

The State Distrust of the Profession.

He pointed to the treatment accorded to medical men by clubs, Friendly Societies, insurance companies, and public bodies, and to such legislation as the Midwives Act and the Notification of Births Act as evidence of that distrust. The fact that the nature of the medical man's services made it ethically impossible for him to refuse them had been used to cheat the profession of its just rights, and its own jealousy and disunion had completed its serfdom. Distrust of the honesty of the profession in the prevention of malingering, and not the cost of a system of payment for work done, was responsible for the adoption of the contract system in the Insurance Bill. The aim of medical men must be to convert distrust into confidence, but before they could be trusted it appeared they must make themselves feared. The directors of great insurance companies, the judicial bench, local bodies, and Parliament were all contemptuous in their attitude towards the medical profession. What were the reasons? The public still had a degree of belief—perhaps subconsciously—in quackery, and so had a doubt as to the intrinsic value of the doctor's knowledge. Another reason for distrust was the growing spirit of coöperation and union amongst medical men. The public could see in doctors' organisation nothing but an attempt to make them pay for services they had come to believe themselves entitled to receive for nothing. Dr. Wynne urged that the present crisis afforded the profession an opportunity of insisting on new standards in its dealings with the community.

Dr. PERCY R. COOPER (Bowdon), in a communication upon

Medical Attendance under State Insurance,

criticised the Chancellor's calculations as to the cost of medical benefit and also the airy way he spoke of bringing into the scheme millions of the general practitioners' private patients. The conditions insisted upon by the medical profession were in the public interest as much as in their own. The policy of the profession was to secure modification of the Bill if possible, and, if not, to refuse to act under it. On their union and loyalty to one another the future of their great and beloved profession depended.

Mr. F. G. LAYTON (Walsall) presented an argument for

A State Medical Service.

Under the present system, if medical men were hard-headed men of business, which, thanks to the gods, they were not, they would oppose everything in the way of preventive medicine to the utmost of their power. It was notorious that they did nothing of the sort, but did all they could to keep their clients well. True, their clients frustrated their efforts, to their profit and advantage. Doctors preached the gospel of hygiene with perfect sincerity; if only people would listen the profession would be speedily ruined. With this preface, Dr. Layton went on to outline a State medical service under a Department of Public Health, the country to be mapped out into districts, and all medical men to be paid regular salaries, with numerous opportunities for promotion. Some day, when the nation had grown wise, it would meet its most insidious foe—disease—with a standing national army of health. The private venture system in this matter was out of date.

Dr. MICHAEL DEWAR (Edinburgh) discussed

The Medical Treatment of the Poor,

devoting attention to the class which, though it maintains itself as a rule, is unable to contribute towards its medical

relief. This was the class which most needed a State scheme, but the Chancellor's Bill did nothing for them. There was very small chance of any money except that subscribed by the Government standing to the credit of a man of this class in the Post Office fund. It was curious that while those able to contribute to the Post Office fund were debarred from receiving sick benefit, they were eligible for medical benefit at once. This was truly vicarious philanthropy on the part of the Government. The Government should have done more for this class and left the steady and good wage-earner alone. He believed if a plebiscite were taken the majority of the industrial classes would say they did not want to be compelled to insure against sickness because they were well able to pay for attendance. Dr. Dewar suggested that, as the present wage-limit was too high, insurers should be entitled to benefit on a contributory basis according to income. He gave reasons against the establishment of a whole-time medical service to do this work, and said private practitioners were perfectly well able to carry it out provided they received adequate remuneration.

In the following discussion,

Mr. W. HOLDER (Hull) thought enough had not been said of the benefits which the Insurance Bill would confer upon the medical man. The provisions for unemployment insurance would enable the working classes to tide over times of stress and meet their medical bills. He complained that the British Medical Association had not secured a definite minimum of remuneration to medical men in the Insurance Bill.

Mr. SMITH WHITAKER on this point explained that it was felt a minimum tended to become a maximum, and it was thought best to leave the Bill as elastic as possible in these matters so as to allow the best possible terms to be arranged locally.

Dr. J. H. KEAY (Greenwich) gave it as his experience as a medical man in a poor district that only by means of insurance could the working-classes provide for medical attendance. He regretted a lack of continuity in the Government policy in these matters. Old-age pensions had been provided on a non-contributory bases; the present scheme was contributory. He was afraid enough advantage had not been taken of the experience accumulated in Germany regarding State insurance, and that we were in danger of repeating some of their mistakes.

Dr. J. JENKINS ROBB (Bournville) declared his belief in a State medical service. He emphasised the need of taking special precautions under the Insurance Bill to prevent malingering. He also gave it as his opinion that the profession had gone too far in its opposition to the Bill and had given the impression that it was "out for fees."

Mr. JAMES NEAL (Birmingham), one of the honorary secretaries of the section, protested against this statement, declaring that the policy enunciated by the British Medical Association had been generally recognised as fair and reasonable.

NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

WEDNESDAY, JULY 26TH.

President, Dr. EDWIN GOODALL (Mental Hospital, Cardiff).

The PRESIDENT opened the meeting of the section with an address on

The Possible Toxic Origin of Some Forms of Insanity,

which will be published in a future issue of THE LANCET.

Professor H. OPPENHEIM (Berlin) was then introduced to the section by the President, and received a hearty welcome. He opened a discussion on

The Different Types of Disseminated Sclerosis

by submitting a classification based on his own experience and researches. After pointing out how inadequate the classical description of the disease, as elaborated by Charcot, had long since become, Professor Oppenheim said that the disease might be classified according to the level of the central nervous system affected, in which case four main types were readily distinguishable—viz., (1) spinal; (2) cerebral; (3) cerebro-spinal; and (4) optic or ocular. I. The spinal variety of disseminated sclerosis was itself subdivisible, according as a vertical level, or an area on transverse section, was adopted for the criterion. In the former case there were (*a*) dorsal, (*b*) cervical, (*c*) lumbo-sacral and sacral, and (*d*) mixed varieties. Of these Professor Oppenheim directed special attention to the cervical type, which was characterised by pains and paræsthesiæ in the upper extremities, usually of unequal distribution, with little objective loss of sensibility, not infrequently with astereognosis and with some ataxia and some slight paresis. This last symptom might be awanting. Reference was made to certain cases under the author's own observation. In the latter case there were (*a*) the spastic type (lateral columns of the cord); (*b*) spastic-ataxic type (postero-lateral combined type); (*c*) ataxic type—so called pseudo-tabes sclerotica; (*d*) anterior poliomyelitis type; (*e*) syringomyelia type; (*f*) amyotrophic lateral sclerosis type; and (*g*) transverse myelitis type. Special attention was drawn to the importance of the (*c*) type, which in a number of ways resembled tabes dorsalis. II. Of the main cerebral type there were several sub-varieties, viz.: 1. Cerebral in the strict sense—(*a*) hemiplegic type; (*b*) pseudo-bulbar type; and (*c*) dementia sclerotica. Professor Oppenheim said that many cases of advanced disseminated sclerosis showed a varying degree of general mental enfeeblement, but actual insanity was very rare. 2. Basal type. 3. Ponto-bulbar type. 4. Cerebellar type. Instances of these were given. Their importance was considerable, for some resembled cases of encephalitis and others intracranial tumour. III. The cerebro-spinal type was the classical type of Charcot. IV. The optic or ocular type formed a class almost by itself, as ocular symptoms might be present literally for years before any other symptoms establish themselves. An instance was given where transient amaurosis and diplopia, occurring in 1895, were not followed by any systemic symptom till 1910. Objection might be made that these varying types were not so much "types" as "modes of onset," but it was a well-known fact that the disease tended to recur in sites which had previously been affected, and from the point of view of diagnosis it was important to be familiar with them all.

Dr. J. S. RISIEN RUSSELL (London) said the Section was greatly indebted to Professor Oppenheim for his masterly description of the varieties of the disease. Dr. Russell said that in his opinion, notwithstanding the multiplicity of the types, it was impossible to reduce their number. He felt that several of them were very rare in this country as far as his experience went, but he agreed on the necessity of recognising them. The pseudo-tabes variety in particular was important, but he thought the absence of definite pupil reflex changes was an aid in differential diagnosis. He asked Professor Oppenheim whether he had ever noted the Argyll Robertson pupil in pseudo-tabes sclerotica. He also remarked on the difficulty of distinguishing between disseminated myelitis and cases of disseminated sclerosis which began as a transverse myelitis type, eventually becoming typically disseminated. Dr. Russell thought it most important to recognise the cerebellar type and the spastic or spastic ataxic type, for such cases, if incorrectly diagnosed, might be needlessly operated on, inasmuch as in some ways they resembled cerebellar tumours and spinal tumours or pachymeningitis respectively.

Dr. F. E. BATTEN (London) thought some of the types so rare in his experience that he was inclined to question the advisability of describing them separately, notably the cervical type. He, too, emphasised the necessity of full knowledge of the cerebellar type, and agreed as to the readiness with which such cases might be confused with cerebellar tumours. In view of the frequency with which islets of sclerosis were found in the cortex of advanced cases, it struck him as curious that the mental symptoms were, comparatively speaking, unimportant. He had never seen insanity in disseminated sclerosis, nor had he seen a case in anyone younger than 14 years.

Professor J. J. PUTNAM (Harvard University, U.S.A.) had never seen actual dementia in disseminated sclerosis. He remarked that the types of the disease were very much the same in all parts of the world, but the frequency of the disease in different localities seemed to vary considerably. Thus it appeared to be more common in Boston than in New York.

Professor E. BONDURANT (University of Alabama, U.S.A.) referred to the difficulty occasionally experienced in diagnosing between disseminated sclerosis and general paralysis.

Dr. JUDSON S. BURY (Manchester) said the spinal type of spastic paresis was pre-eminently the type found in the

Manchester district. In uncomplicated spastic cases occurring in the adult the possibility of disseminated sclerosis was always to be considered. The spasticity was in advance of the paresis. The chief, and in fact the only, muscular group affected—and perhaps only very slightly—was the flexors of the hip. This fact was useful in differential diagnosis. He referred to a remarkable case in which the symptoms of disseminated sclerosis, which had been well marked, disappeared after an attack of small-pox.

Dr. R. T. WILLIAMSON (Manchester) also referred to the frequency of the spastic paresis type, in which he had found, as a rule, that while most varieties of sensibility were intact, pallæsthesia, or the vibration sense, was often considerably impaired in the lower extremities.

Mr. W. J. MIDELTON (Bournemouth) and Dr. DAVID BLAIR (Lancaster County Asylum) continued the discussion.

Dr. F. W. MOTT (London) said that in 2000 necropsies on patients suffering from mental disease he had found only one case of disseminated sclerosis.

Dr. E. HOBHOUSE (Brighton) also spoke.

The PRESIDENT said that in 21 years' continuous asylum experience he had never seen a single case.

Professor OPPENHEIM, in his reply, said that the rarity of any given type was no reason for omitting it from the classification. He felt that the diagnostician and clinician ought to be familiar with the different types, and all were equally important.

OBSTETRICS AND GYNÆCOLOGY.

WEDNESDAY, JULY 26TH.

President, Professor EDWARD MALINS (Birmingham).

The PRESIDENT, in opening the proceedings, said that in the department which the Section represented progress had been well maintained during the course of the past year. Much had been done in various directions, and more especially in seeking to lessen the mortality of childbirth and to diminish the amount of illness attendant upon it. It had been stated that in the special departments for diseases of women at least one-third of all cases were supplied by puerperal morbidity, and he urged the profession to consider the seriousness of such an indictment and to use all its powers to prevent such evils. The President then referred to the importance of the Midwives Act of 1902 and the great value of the Bill to the community. At the present time 31,625 names are on the Midwives Roll, of which 10,108 have passed the required examination, and another 10,000 hold certificates from other licensing bodies. Such women have all been taught the importance of rigid asepsis and the intelligent observation of the thermometer and pulse. Attention was then drawn to the difference in mortality and morbidity between the results of hospital and of private practice, and inasmuch as the health of the women of a country was one of the chief assets of that country, the President observed that he was to some extent in favour of State-aided institutions. He mentioned the case of St. Petersburg, which is equipped with 15 municipal maternity homes. In that city, in the year 1909, 19,000 cases were admitted to the hospitals with only a fractional percentage mortality. In fact, 41·9 per cent. of all maternity cases in St. Petersburg are conducted in the municipal clinics. The President paid a high tribute to the work of Sir James Simpson, whose centenary had only recently been celebrated.

Dr. C. HUBERT ROBERTS (London) read a paper on

Eclampsia occurring in Labour in a Girl aged 12; Recovery of Mother and Child.

Dr. Roberts gave a complete clinical account of a case of eclampsia occurring in a Jewess, aged 12, admitted to Queen Charlotte's Hospital on April 2nd, 1911, in labour at the end of the ninth month of her pregnancy. The girl was of medium height and weighed 8 st. 9 lb. Her pelvic measurements were as follows: interspinous, 9¼ in.; intercristal, 10¼ in.; external conjugate, 6¾ in. Considerable œdema of both lower extremities was present, but œdema of the face, arms, &c., was absent. A purulent vaginal discharge was present. The urine showed a large quantity of albumin (two-thirds on boiling). On admission the patient was in a very excitable and uncontrollable condition, and in the afternoon of the day following admission a typical eclamptic convulsion occurred. The child presented in the left occipito-posterior position and the membranes had not ruptured. Treatment was instituted by rectal salines, morphine injections, and hot packs. Labour was prolonged, but eventually rotation occurred and delivery was effected by forceps in the left occipito-anterior position. About 18 ounces of blood were lost during delivery of the placenta. The labour occupied in all 69¼ hours. Shortly after delivery a very severe eclamptic convulsion occurred. Other typical eclamptic seizures followed and the patient passed into a condition of deep coma with a rapid, feeble pulse. Gastric lavage with a solution of sodium bicarbonate was performed and castor oil (2 oz.) was introduced into the stomach. The condition became aggravated in spite of all treatment until April 6th, when the patient was conscious for the first time. Convalescence from this moment was steady and maintained, and on April 18th the urine exhibited only the faintest trace of albumin. The temperature at the height of the attack showed pyrexia of 105° F. The patient left the hospital on the twenty-eighth day in good health, with a fine healthy baby. Dr. Roberts drew attention to the rarity of eclampsia at this early age and to the seriousness of the condition. As far as mere labour in very young subjects was concerned, he thought that the cases usually ended well and that the children, as a rule, were well developed. As regards treatment, he relied chiefly upon purgatives, the use of chloroform narcosis, and saline infusion following venesection. He also had considerable faith in early lavage of the stomach, high slow rectal salines, and the employment of glucose enemata. Morphine and hyoscine subcutaneous injections were useful to check the convulsions, but should not be used if the urine was diminished in quantity. He did not think that the question of induction of labour was an important one, as most cases were met with at the onset of labour itself. Should it be necessary, he advocated the use of Hegar's dilators and the de Ribes bag, and did not think that Cæsarean section should be practised. He noted that the mortality of Cæsarean section for this condition is as much as 55–58·9 per cent.

Dr. THOMAS WILSON (Birmingham) thought that in cases of eclampsia there was at present a large element of luck as to the ultimate result. The cases that at first appeared mild often developed serious complications and the patients died, whilst not infrequently women *in extremis* would suddenly recover. He further asked why the prognosis should vary in different countries or parts of a country. At the Birmingham Maternity Hospital the mortality over several years registered 33 per cent., whilst Stroganoff at St. Petersburg quoted a mortality of 5 per cent. over a series of 200 cases. Does this mean that the treatment at St. Petersburg is more efficacious, or that the disease there falls under a different category? As regards treatment he certainly thought that induction of labour should be considered, and for the spasms he relied upon chloroform and morphine. He thought that the urine was of little value in prognosis unless absolute suppression was present, and he considered that an examination of the urine during the later months of pregnancy had no great value in foretelling the incidence of eclamptic convulsions.

Dr. HERBERT R. SPENCER (London) was in agreement with the views expressed by Dr. Wilson as to the difficulty in prognosis with eclampsia. His first 13 cases had all recovered, but this success was marred by later cases, which had not terminated so happily. He referred to the presence of abdominal pain associated with œdema of the extremities as of some value in foretelling the incidence of convulsions. As regards treatment, he somewhat doubted the efficacy of infusions.

Dr. J. B. HELLIER (Leeds) now advocated a purely expectant method of treatment and deprecated resort to such means as abdominal section and dilatation by Bossi's instrument. He referred to the risks of repeated pregnancies in eclamptic patients, but a study of statistics had shown him that these risks were not always as bad as they had been stated.

Dr. JOHN CAMPBELL (Belfast) said that when convulsions were present he always administered morphine, ruptured the membranes if labour had not commenced, and then conducted a purely expectant method of treatment. He thought that examination of the urine during the later months of pregnancy was a distinct asset in foretelling the onset of eclampsia. So many women suffer from transient œdema of the extremities in the later months of pregnancy

that unless albuminuria is present as well, little faith can be placed upon the former.

Professor PAUL STRASSMANN (Berlin) referred to the frequency of vaginal Cæsarean section in Germany in the treatment of eclampsia. He cited especially the work of Bumm and Krönig. The latter also practises renal decapsulation. As an explanation of the varying results obtained in eclamptic patients, he suggested that seasonal conditions may have a distinct bearing. Certainly in Berlin the mortality and incidence varied at different periods of the year. Cases were more frequent in March and April, and coincided with the incidence of bronchitic and other similar affections. He thought that the kidneys may be more susceptible to the toxins at these periods. He could offer no suggestions as to the ultimate prognosis in any given case of eclampsia.

Dr. R. C. BUIST (Dundee) emphasised the importance of employing the results of large clinics in estimating the value of any particular treatment. He had seen good results follow renal decapsulation.

A New Form of Vaginal Speculum.

Dr. HUBERT ROBERTS exhibited a modification of Sims's duck-bill speculum fitted with a flange to the upper blade (see p. 366, where the instrument is fully described).

Sir FRANCIS CHAMPNEYS (London), after apologising for his delay in reaching the section on account of an accident to his train from London, opened a discussion on

The Pathology and Treatment of Asphyxia Neonatorum.

He first discussed the causes of the first breath, and divided these into two groups, viz.: (1) predisposing, and (2) exciting. Of the predisposing causes, the essential factors are canalisation of the cervical canal and diminution in size of the placental site, with its associated diminution in the blood-supply and aeration of blood to the fœtus. This is very pronounced at the birth of the child. Not infrequently a child may not breathe for several minutes after birth, and yet if kept warm is in no danger. It is in reality breathing still through the placenta. Of the exciting causes the impact of cold air is the most important. Reference was made to breech cases, where the child is deprived of both methods of respiration—viz., pulmonary and placental. The speaker recognised two stages of asphyxia—viz., (1) apoplectic, where the child is livid, the muscular tone is not lost and it responds to reflex stimulation; and (2) syncopal, where the child is pale and flabby, muscular tone is lost and there is no response to any reflex. These latter are the serious cases and may be due to pressure upon the brain. Reference was then made to the inspiration of mucus. Before breath is taken all the air spaces are closed. When respiration takes place, lanugo, meconium, &c., may even reach to the pleura. Such cases usually die from a low form of pneumonia. With regard to treatment Sir Francis Champneys emphasised the important difference that exists between "blue" and "white" asphyxia. He discussed the subject under the following headings: (1) The removal of all foreign bodies from the respiratory tract; (2) means to secure the patency of the air-passages; (3) stimulation of the circulation; and (4) means to procure thorough ventilation of the lungs. To effect the first object he recommended that the child be placed on its back, the head extended, and the trachea gently stroked upwards, a finger being placed at the orifice of the trachea. Patency of the air passages may be secured by the passage of a catheter. The circulation may be stimulated by pressure over the præcordium. The importance of friction over the spine was also emphasised. Ventilation of the lungs might be procured by the time-honoured methods of Silvester or Schultze. The speaker asked the members to note that the normal position of rest in the child's thorax was one of expiration. If Silvester's method was adopted, the arms should be everted and seized above the elbows. Schultze's method had the disadvantage of possibly causing internal lesions, but it certainly might procure patency of the air-passages when other methods failed. Furthermore, it procured descent of the diaphragm as in normal respiration. The method should be carried out properly if at all, and Sir Francis Champneys insisted upon the importance of simply steadying the child's body and *not* grasping it. Of other methods, reference was made to insufflation and rhythmic tongue traction. In conclusion, the speaker urged his hearers: (1) Never to hurry; (2) to employ sound judgment as to whether the case is one of pale asphyxia or true death; and (3) to persist in treatment over a sufficient length of time.

Dr. SPENCER observed that in his opinion the shock and anæmia of the "syncopal" type of asphyxia were in reality due quite frequently to visceral injury produced during birth. This he had shown by post-mortem examination. He quite agreed that spinal friction was a valuable asset in treatment. He also placed considerable reliance upon intratracheal catheterisation. He condemned Schultze's method of artificial respiration as distinctly dangerous. The use of oxygen had given good results in his hands.

Dr. HELLIER considered that Schultze's method was dangerous in the extreme. He advocated the teaching to midwives of Silvester's method only.

Dr. WILSON professed himself as a great advocate of the warm bath, and if some method of artificial respiration that could be carried out in the bath was devised he thought that it would have a wide application.

Dr. ROBERTS drew attention to the asphyxia of children after Cæsarean section, and observed that this could not be due to interference with the placental circulation as it was immediately under the eye of the obstetrician. He agreed with Dr. Wilson as to the importance of the warm bath.

Dr. BUIST demonstrated his application of Schultze's method of artificial respiration, and said that if this was properly carried out no great force was required, and that many of the so-called "dangers" disappeared.

Professor STRASSMANN said that when Schultze's method was properly performed a distinct wheezing inspiration was audible.

ODONTOLOGY.

WEDNESDAY, JULY 26TH.

President, Professor FRANK EARLE HUXLEY (Birmingham).

The PRESIDENT having welcomed the visitors and given a brief outline of the programme of the section,

Mr. R. J. ERSKINE YOUNG (Liverpool) opened a discussion on

Dental Diseases from the Physician's Standpoint.

He said that oral sepsis struck at the very root of national health, giving rise to septic anæmia and other constitutional disorders. Appendicitis might be due to oral sepsis through a carious condition of the teeth; tuberculosis, too, might gain an entrance to the system through the exposed pulps of carious molars. He pleaded for a better education of the people on this matter through the medium of the intelligence and sympathy of the daily press. Preventive dentistry was all-important. There was a necessity for legislation regarding the use of local anæsthetics, and a greater knowledge and interest on the part of medical men in connexion with conditions of the mouth which gave rise to severe constitutional disturbances. He narrated his personal experiences as a dental officer in Liverpool.

Sir VICTOR HORSLEY (London) considered that it was through the Section of Odontology that the British Medical Association could speak to the great British public. In London 750,000 children required dental attention and treatment. This could only be gained by the establishment of school clinics. A forward movement on the part of the British Dental Association was required for the enlightenment of the school clinics committees. Dental treatment meant the inauguration and equipment of at least 100 clinics in London. It was the most important national question of the day. He thought that the section should pass at its closing meeting a resolution dealing with the matter, and considered that there should be a closer coöperation between the professions of medicine and of dental surgery.

Mr. C. E. WALLIS (London) dwelt on the need for the conversion and instruction of the members of the education committee of the London County Council, and advocated the delivery of lectures to members of that committee, to parents, and to members of the medical profession.

Mr. H. R. F. BROOKS (Banbury) spoke of the financial difficulties connected with the work, and believed that the solution would be found in State dentistry. The principles of the National Insurance Bill now before Parliament should be extended to the dental side of the question.

Mr. YOUNG replied.

A paper entitled

Dentistry and the Public

was read by Mr. CYRIL HOWKINS (Birmingham), who emphasised the necessity of the elementary school children receiving early dental attention. This was called for from three directions: (1) the general physique of the child; (2) the educational standpoint; and (3) the future of the individual. The after-history of over 3000 children of Birmingham showed that the general physique and health of a child vastly improved after dental treatment. The child was also brighter and got on better at lessons, and rarely stayed away from school from a dental cause. The future of a child who was dentally well equipped on leaving school must be far better than one who laboured from the disadvantages and dangers of oral sepsis. Regarding cost, this might be divided into two parts—capital outlay and annual expenses. The former depended upon different circumstances; roughly, however, about £75 should equip a small house as a school dental clinic. The annual expenditure would be about £450 a year, including £300 stipend for the dentist. The remaining £150 would cover rent, rates, taxes, payment of caretaker, gas, fuel, water, dental materials, &c. From the statistics worked out from the Birmingham dental clinic it appeared that about 3000 children might be attended to every year by a full-time dentist. Mr. Howkins thought that six hours a day was as long as one dentist could conveniently work as a rule on account of the difficulty of dealing with young children.

Mr. W. BOWATER (Birmingham), Mr. HAROLD ROUND (Birmingham), Mr. R. W. CLAYTON COOPER (Birmingham), and Mr. YOUNG joined in the discussion.

Mr. HERBERT SMALE (London) and Dr. D. W. CARMALT JONES (London) contributed a joint paper on

The Bacteriology of the Tooth-brush.

They said that a tooth-brush became septic after once using, each hair becoming an inoculation needle, and the person using it might be vaccinated with such germs as flourish upon it. It might be the origin of pyorrhœa alveolaris with its attendant sequelæ of anæmia, gastritis, arthritis, &c. Tooth powders and pastes as usually used did not render the tooth-brush aseptic, 1 in 20 of carbolic acid not being an effectual germicide. All tooth-brushes should be boiled for five minutes before and after use. A new tooth-brush could be used each day, penny ones sold at penny bazaars being good enough for the purpose. Trikresol (1 per cent.) should be used for rinsing the brush, which should be allowed to stand, when not in use, in 10 per cent. formalin solution. A thin quill tooth-pick and floss silk for the removal of the scurf of Leuwenhoeck were essential for cleanliness. No means had suggested themselves of rendering the mouth an aseptic cavity, nor had any profound disappointment been excited on that account. But, a septic cavity notwithstanding, it is undesirable to use a septic instrument for the scarification of the gums, thereby forcibly driving septic micro-organisms into the tissues at the point of the bayonet. It would seem that the use of 1 per cent. trikresol was a simple and accessible method of rendering the tooth-brush free from the commoner pathogenic organisms. The experiments carried out for this paper seemed to lead to the foregoing conclusions.

The PRESIDENT took part in the ensuing discussion, which was continued by Mr. DOUGLAS P. GABELL (London), who strongly deprecated the use of an antiseptic spray in the mouth.

Mr. A. HOPEWELL-SMITH (London) said that india-rubber tooth-brushes were to be obtained which could be thoroughly cleansed at once by washing under a stream of water, and possessed no properties of retaining bacteria on their surfaces. If the bristles of ordinary brushes carried such numbers of bacillary colonies as had been mentioned, their sockets in the tooth-brush itself must be still more numerously and dangerously infected. Mechanical cleansing only of the mouth, he asserted, was necessary in ordinary circumstances, and antiseptic mouth-baths, pastes, &c., never required except in the case of diseased conditions of the mouth and after operations on the jaws. The weak antiseptics found in mouth-baths were of no value whatever in destroying the action of pathogenic micro-organisms in the oral cavity.

Mr. A. W. WELLINGS (Birmingham) described with Mr. C. W. RANDALL (Birmingham) a case of a patient with

Hypertrophy of the Gingival and Alveolar Margins of the Jaws associated with Pyorrhœa Alveolaris.

The patient was exhibited and examined by members. Radiographs and other lantern slides were shown in illustration of the case.

Mr. HOPEWELL-SMITH inquired if sections of the tissues had been cut and examined microscopically; if so, what they showed, and if the Saccharomyces mycoderma was present? It had been affirmed by an American author (Roe) that this bacterium was the cause of the disease. He thought that the species of bacteria, photomicrographs of which had been thrown on the screen, appeared to be the usual pathogenic and pyogenic organisms associated with diseases of the gums and alveolar processes of the jaws.

The discussion was continued by Mr. GABELL, the PRESIDENT, and Mr. J. E. PARROTT (Birmingham).

OPHTHALMOLOGY.

WEDNESDAY, JULY 26TH.

President, Mr. HENRY EALES (Birmingham).

The PRESIDENT said that he wished to give a hearty welcome to all those ophthalmologists who had favoured them with their presence. He was glad to see so many, and he ventured to think that their expectation of the presentation and discussion of a series of valuable papers was destined to be fulfilled.

Professor PRIESTLEY SMITH (Birmingham) opened a discussion on

The Operative Treatment of Glaucoma.

He said that at the outset he would put certain questions to them as an indication of the lines upon which his paper would run. Ought they to depart from the time-honoured operation of iridectomy of von Graefe in the treatment of glaucoma? And, if so, what other and new operation should replace it? The purpose of operation he held to be the establishment of the filtration of the accumulated fluid within the eye; either normal filtration should be restored, or abnormal filtration should be set up. Experience had shown that the area of their operation was strictly limited. It must be at the site of normal filtration. Posterior sclerotomy, posterior trephining, and tapping the anterior chamber were all proved to be only temporary means of reducing tension. That being so, the anatomical characters and variations of the site of operation became important. He showed that the extent to which the limbus overlapped the filtration angle differed in different persons, and also in the same eye, for the overlapping was more marked above and below than laterally. Also the relation of the lens to the circumlental space varied; even with the same sized lenses it was larger in some eyes than in others. If this were so in normal health, it must be even more marked in congestive glaucoma. With the aid of a series of lantern slides of sections of healthy and glaucomatous eyes he illustrated these points. Considering operative measures, he held that the object of iridectomy was the restoration of the normal outlet of the aqueous, and the clinical manifestations were that this was secured in the greater number of cases of acute glaucoma. There were a few such cases in which happy results were not secured, and they were accustomed to describe this as "malignant" glaucoma, a convenient cover for a disastrous result. In his experience posterior scleral puncture preceding the operation for iridectomy was a most beneficial proceeding; it slackened the tension of the eye, lessened the risks of the sudden loss of tension at the moment of the larger incision into the globe, and it in no wise increased the difficulty of the iridectomy. In other conditions, or in such cases where they had failed to restore the normal outlet of the aqueous, they must look to the production of artificial outlets, "cistoid scars"; of these conditions chronic glaucoma was the most important. In congestive attacks it was possible to reopen a freshly blocked filtration angle, but in chronic glaucoma there were adhesions, perhaps sclerosis, so a normal track was impossible. The possibility of securing abnormal filtration routes was not a new idea—it had been recognised by de Wecker; in recent years most valuable work had been done by Herbert, Lagrange, Elliot, and Fergus in

the systematic production of such abnormal routes for filtration. These results had placed within their hands a series of excellently conceived and well-established operations from which it was possible for them to make choice. His own experience had been confined to Herbert's original "wedge" operation, a modified sclerectomy, and in his experience it was all that could be desired, the results were most satisfactory and the failures few. For early acute glaucoma he still thought that iridectomy was a good and successful operation; he did not like the idea of trephining down upon the swollen base of the iris and turgid ciliary processes. But for chronic cases he thought these new modes for the production of an artificial route of filtration excellently designed, and in their effects superior to iridectomy.

Major R. H. ELLIOT, I.M.S., followed with a paper entitled

Observations on Trephining the Sclera.

The simple trephining operation he advocated had now been performed in 403 cases in Madras. By this means they established a direct entry into the anterior chamber with the least possible disturbance of the iris and surrounding tissues. He was in the habit of turning forward a large conjunctival flap and continuing the dissection so as to split the cornea for the depth of 1 mm.; then the trephine was used to cut out a small disc, half cornea and half sclera, from the margin of the limbus. In his experience a trephine 2 mm. in diameter was the best. Care must be taken not to buttonhole the conjunctival flap. As regards the risks of the operation, the disc might fall into the anterior chamber if too much force were used; in his experience the accident did not matter, and it was unwise to seek to remove the lost disc. In 5 per cent. of his cases there had been escape of vitreous, 16 of them in desperately bad eyes where every risk was intensified. In nearly 50 per cent. of cases iridectomy had been done conjointly with the trephining. In some cases this procedure had been followed because the iris tended to advance into the hole, but that was not always so. For secondary prolapse iridectomy had been done in seven cases. He was disposed to perform iridectomy in most cases merely as a mechanical safeguard, and not as enhancing the effects of the operation. He then showed by means of diagrams the different effects of the trephining, according as the state of the angle of the anterior chamber and the position of the root of the iris varied. In conclusion, he maintained that granting the necessity for removing a piece of the sclera to establish filtration or filtering scars, trephining was the simplest and best operation.

Dr. J. GRAY CLEGG (Manchester) continued with a paper entitled,

Observations on Trephining the Sclera.

In recent years he had done several operations other than iridectomy for chronic and acute glaucoma, such as Gayet's, Herbert's wedge operation, and Lagrange's operation, but with only moderate success. The reaction from these operations was rather violent, and there was some uncertainty of the size of the sclerectomy in the last-named operation. Succeeding these operations he had performed trephining 23 times with the most satisfactory results, and he considered this operation suitable for all types of primary glaucoma. The improvement obtained in visual acuity was striking, such a change as the restoration of 6/6 vision after it had been reduced to "fingers" was not rare. As to the risks of the operation, he had found few: there had been no escape of vitreous; prolapse of the iris at the moment of trephining had occurred four times, necessitating iridectomy; there had been secondary bulging of the iris once, and of the ciliary body twice.

Mr. C. DEVEREUX MARSHALL (London) said that in his experience malignant glaucoma did not occur if preliminary posterior sclerotomy was performed. For acute glaucoma his inclination was distinctly in favour of iridectomy in preference to any other operation; it had stood the test of time in the way no other operation had, and its results were uniform and good. He had performed Herbert's small-flap sclerotomy many times and with most satisfactory results; but whilst admitting that freely, they had yet to wait to ascertain the permanency of its effects. Trephining he had no experience of, but the results advanced by Major Elliot were good reasons for utilising the method.

Mr. THOMSON HENDERSON (Nottingham) said that their practice must be based upon a rational physiology; the success of iridectomy as a means of relieving tension was established, but it was originally an empirical procedure, and it remained for them to put it upon a rational basis. That basis could only be done by an investigation of the circulatory conditions of the eye, such as he had indicated in his experiments and the deductions therefrom, and the experiments upon cerebral and ocular circulation by Dr. Leonard Hill.

Mr. H. HERBERT (Nottingham), discussing the appearance of scars after iridectomy for glaucoma, said that only those scars which were invisible, or nearly so, could with safety be asserted as solidly knit scars. It was possible in almost all other scars to show that over them there was an abnormal conjunctival œdema—i.e., that there was filtration from the eye through the scar into the subconjunctival tissue. He showed a section of a "small-flap" wound in which the scar was partly filled with loose fibro-cellular tissue and in which serial sections had proved the absence of any fistula, yet in that eye there had been œdema over the scar. It was confessedly easy to obtain a reduction of tension in an eye by cutting widely into the sclera, but the defect of that procedure was the want of control in the degree of reduction, the eyes tended to get soft. The question was how could they best secure control over filtration, by sclerotomy or sclerectomy? He thought by sclerotomy. As yet the method was in its infancy and its possibilities had been imperfectly explored. For instance, numerous modifications of the small-flap operation at once suggested themselves should variation prove necessary. In hard, blind eyes sclerotomy at present often proved efficient only in removing pain, the tension being imperfectly reduced at least for a time. And there were a few secondary glaucomas in which the need of freer filtration was obvious.

Mr. F. RICHARDSON CROSS (Bristol) said that without question physiology and pathology must be at the basis of their conception of treatment. In his view the work of Weber and that of Priestley Smith had established the primary facts of the importance of the filtration angle; and whilst he congratulated Mr. Henderson on his work and hoped he would continue it, as yet he could not say his faith in the older theories was disturbed. In acute glaucoma there could be no question that iridectomy was the best operation, and that operation was the only treatment. Chronic glaucoma was a different condition; the most perfect iridectomy might fail to relieve the tension permanently. He had always tried to make his incision a long shelving one, commencing, say, 2 mm. back from the limbus. In a number of cases of hydrophthalmos he had had remarkably successful results by doing Herbert's small flap sclerotomy with Bishop Harman's "twin scissors," and he was of opinion that for these cases it was preferable to iridectomy. As a rule, he should continue to do iridectomy in simple and chronic glaucoma, as well as in acute cases; but should tension recur he should use the sclerotome, preferably Bishop Harman's.

Dr. ADOLPH BRONNER (Bradford) said he had tried various methods of operating for glaucoma. In acute and subacute conditions he performed posterior sclerotomy first, if possible, and then iridectomy. If tension recurred he used the trephine. In chronic cases he still preferred iridectomy, except in cases of arterio-sclerosis with increased blood pressure in feeble and nervous patients—then he trephined. He showed a modified form of trephine which he found convenient in use; it had an outer sheath which steadied the trephine in boring and prevented wobble.

Mr. N. BISHOP HARMAN (London) said no speaker had as yet considered the various merits of these operations from the patient's point of view. Granting for the sake of argument equal value in iridectomy, sclerotomy, and sclerectomy, which operation was most commendable from the point of view of the patient's general condition? For acute glaucoma he believed in a wide iridectomy; the condition was severe, and demanded an operation which even though severe was undoubtedly reliable. In chronic glaucoma the case, although serious enough, did not present so formidable an aspect to the patient's mind. The loss of vision might be small or only occasional, even the field might be but little affected; in such a case an iridectomy, with the necessarily wide laying open the eyeball, strict confinement in bed for at least a week, the certainty of considerable resultant astigmatism, presented no attractive prospect. The confinement in bed alone was a serious item in old folk with feeble hearts

and circulations, and there is no doubt these considerations had deterred not a few surgeons from advising operation in times past and had favoured the use of miotics. Contrast with the risks of iridectomy the simplicity of the procedure in Herbert's operation, the one with which he was familiar—the advantages were manifest. There need be no pain at the operation; the risk of injury to the eye was the smallest; he had no hesitation in permitting patients to sit up in bed the day after the operation, so that the disturbance of an old person's condition was the least possible; very little, sometimes no, astigmatism was caused by the operation; and lastly, in the event of a failure to secure a permanent lowering of tension it was easy to repeat the operation, indeed, he proposed this week to do a third operation upon a patient in whose eyes the benefit of the previous operations had not been maintained. This particular case was of interest; the man's sclerotics were extraordinarily tough and gristly, so that the flap produced had very little pliability. He thought that in such cases the tip of the flap should be excised, as had been suggested by Herbert. The differences of the texture of the sclerotic and its effects upon operative procedure were worth considering.

Mr. W. H. H. JESSOP (London) said that the discussion was one of the greatest importance. He considered there were great differences in acute and chronic glaucoma. In acute the large peripheral iridectomy, preceded, if necessary, by a posterior scleral puncture, was the proper procedure. In chronic glaucoma iridectomy was frequently of little use and even dangerous, and it was in these cases he now performed Herbert's sclerotomy in preference to that of Lagrange. He had no experience of trephining, but intended to try it.

Mr. CHARLES WRAY (Croydon) said that, admitting all that was claimed for the new operations to be true, his early experience of operations in chronic glaucoma left him credulous of the advantages of operation over the continued use of miotics. He had cases which had maintained their stand for 15 to 30 years, and that without risks, such as soft eyes and detached retina.

Dr. T. HARRISON BUTLER (Coventry) had tried Elliot's operation with satisfactory results. He had had difficulty in getting trephines that would cut; so far Freeland Fergus's had proved the best. He had had difficulty by reason of the disc of tissue falling into the anterior chamber. One point he thought should be called attention to, and that was the grave risk attaching to operations upon eyes in which the periphery of the field approached the fixation spot; operation might secure permanent fall of tension, but it was liable to cause loss of macular vision. On the matter of the circulation of the eye, it was interesting to note that a recent German author had brought forward a series of observations upon which he based the thesis that there was no interocular circulation! Then there were the observations of Professor Arthur Thomson, which indicated that circulation might be limited to the small pump-like action of the scleral spur.

Mr. J. JAMESON EVANS (Birmingham) said he had looked up the hospital notes of the last two or three years' cases of glaucoma. He found 9 acute and 3 absolute cases, for all of which iridectomy was performed; 5 subacute and 33 chronic cases, for which filtration operations were done, half Herbert's wedge, and the other half trephining. His general conclusions were in favour of iridectomy for acute glaucoma and trephining with or without iridectomy for chronic cases. Trephining was, in his experience, the easiest operation and caused the least reaction; it was easy to repeat, and it caused no disfigurement.

Mr. WILFRID ALLPORT (Birmingham) had performed 40 operations after the fashion of Herbert's wedge-operation, mostly in chronic cases, with excellent results in every case. For acute glaucoma no scleral operation was so satisfactory as scleral puncture followed by wide iridectomy.

Mr. JOHN HERN (Darlington) said that were he to put himself in the position of the patient, as suggested by Mr. Harman, he would certainly prefer a wide peripheral iridectomy for acute or chronic glaucoma in preference to any of the newer scleral operations. With the incision placed well back in the sclera, as had been described by Mr. Cross, there was the best guarantee of success.

Dr. A. F. MACCALLAN (Cairo) said the condition of the iris should determine our choice of operation. If the iris was atrophied, then the possibilities of absorption were diminished, so that something else than iridectomy was required.

Mr. CLAUD A. WORTH (London) said in his view atrophy of the iris was not so important as the possibility of the existence of adhesions of the iris at the filtration angle; where these existed iridectomy was almost certain to fail.

Dr. H. SECKER WALKER (Leeds) said that for acute glaucoma he believed in iridectomy, but he had no faith in it for chronic glaucoma. He got better results with Lagrange's operation than with iridectomy, and better still with Herbert's operation. The small flap operation he found comparatively easy to do, quite painless, it gave excellent results, and it could be repeated in case of only partial success.

The PRESIDENT recalled the days when cocaine was unknown, and how on occasions they had to perform iridectomy in acute glaucoma without even a general anæsthetic; once he operated on both eyes at one time.

Major ELLIOT, in reply, maintained that the success of iridectomy lay mainly in the procuring filtration through the scar. This could be determined quite easily when it was specifically looked for; it was as easy to find as pitting of the shins in œdema of the legs. He advocated trephining for acute as well as for chronic glaucoma; he maintained that it was a safe proceeding, which iridectomy was not. It was not necessary to perform scleral puncture to make it safe or enable it to be performed, as had been acknowledged by some speakers. In fact, the harder the eye the easier the trephining, and there was no risk with ordinary care that the aqueous would escape too rapidly. The occurrence of quiet iritis had been referred to; it certainly followed trephining, though he doubted if it was true iritis, but it could be prevented by the routine use of atropine on the third day. Iridectomy he held advisable in trephining, but merely for its mechanical effects. As to the discussion between Herbert and himself, it came to this: Herbert considered trephining did too much, whilst he (Elliot) thought sclerotomy did too little. He could confirm Mr. Harman's observations concerning the differences in the texture of the sclera of patients.

Dr. CLEGG, in reply, considered trephining good and safe for acute glaucoma, and instanced his four successful cases.

Mr. PRIESTLEY SMITH, in reply, said he had a great admiration for Mr. Henderson's work, but could not follow him in his conclusions that cerebral and ocular pressures were always the same. Did he mean that when ocular pressure was thrice what it ought to be the brain was subjected to a similar excess pressure and without any symptoms? The problem they had to consider was how to secure a filtration scar that would be the best for the majority of cases. Lagrange, Elliot, and Fergus removed pieces of the sclera; Herbert displaced a piece. The apparent test was the production of œdema. The true test was not apparent œdema, nor the tension, nor visual acuity, but the field of vision as mapped with the perimeter.

PATHOLOGY.

WEDNESDAY, JULY 26TH.

President, Professor R. FRASER CALDER LEITH (Birmingham).

The PRESIDENT, after a few words of introduction, mentioned with regret that Professor Charles Richet was unable to be present, and as he had not sent his paper the following abstract was read: 1. The penetration into the blood of a heterogeneous (= native) albumin—that is, of one not altered by digestive processes—produces a special state of hypersensibility to this same albumin: this is anaphylaxia. 2. Anaphylaxia by digestive channels (or in other words alimentary anaphylaxia) is due to some ingested albumins not having been sufficiently elaborated by the digestive juices. 3. The anaphylactic state can only be explained by the presence in the blood of a special non-toxic substance, but capable of giving, with antigen, an extremely toxic one. This non-toxic substance is toxogenin. Its presence is proved by this, that on mixing the blood of an anaphylactic animal with the antigen one obtains a substance that is immediately toxic. 4. Once toxogenin has been formed in the blood, it disappears from it only very slowly, if even it does ever disappear, so that the anaphylactic state continues for weeks, months, or perhaps years. 5. The presence in the blood of a special toxogenin allows one to make for certain diseases a

diagnosis by anaphylaxis, but this requires scientific investigation, for up to the present the cases in which anaphylactic diagnosis is strict, as with tuberculin, are not numerous, but one may suppose that this method will be perfected. 6. One can combat the anaphylactic state by injections, repeated at frequent intervals, of very small quantities of antigen (anti-anaphylaxia). 7. All subsequent injections of serum or of antigen may produce serious accidents if the second injection is made more than ten days after the first. 8. Anaphylactic accidents affect the nervous system especially—for example, cardiac, vaso-motor, and respiratory. 9. "Idiosyncrasy" of the older writers can be explained in great part by previous anaphylaxis, in part by previously acquired immunities, and partly also by the inheritance of the anaphylaxes and immunities of their parents. 10. Anaphylaxia and immunity are not antagonistic. In many cases immunity and anaphylaxia march side by side after the injection of an antigen.

Dr. WALTER D'ESTE EMERY (London) then read his opening address on

Hypersensitiveness in its Various Manifestations, especially in Relation to Serum, Vaccines, and Tuberculin,

in which, after a brief historical introduction, he drew especial attention to the researches of Arthur on rabbits, in which the anaphylactic reaction to re-injection of serum was mainly local, and to those of Otto, Rosenau, and Anderson on the more sudden and dramatic effects of the injection of serum into a guinea-pig, previously sensitised by a small dose of the same substance, as being the starting points of our knowledge of anaphylaxis. Dr. Emery proceeded to outline the conditions necessary for the development of anaphylaxia. These are the presence of a foreign substance, probably always of protein nature, in the blood or tissues, and a certain incubation period. The incubation period varied according to the size of the sensitising dose, as a rule being from 10 to 15 days, but when large doses were used the period might be as long as 45 days. Dr. Emery mentioned that in Theobald Smith's phenomenon the reaction occasionally occurred in as short a time as half a minute. This depends on the rapidity of absorption, being most rapid in intracerebral injections, next in intraperitoneal and in subcutaneous injections. The possibility of anaphylaxis to non-protein substances, such as iodoform, was discussed, and the suggestion that these acted by splitting up the proteins of the body and thus giving off proteins which did not occur normally was adopted. As regards the symptoms which occur on re-inoculation in man, Dr. Emery pointed out that the symptoms resemble Arthur's phenomenon in rabbits rather than the intense shock which occurs in guinea-pigs, and that the differences in the phenomena might be caused by the rapidity with which the protein gained access to the brain, as shown by Baldwin in the case of tuberculoprotein. Dr. Emery remarked that all parts of the tissues were involved in anaphylactic shock. There were nervous, respiratory, circulatory, alimentary, and cutaneous symptoms. With regard to serum disease in man, he alluded to its connexion with asthma and its possible causation in some cases by previous sensitisation of the patient by eating horseflesh. Dr. Emery called special attention to the local reaction observed after repeated re-inoculation of serum at the same site of inoculation or in places in which previous injections had been made. He mentioned that there were no data as to the duration of the anaphylactic state in man. Periods of from one to nine years were known in guinea-pigs; in man it sometimes lasted as long as three years. In rabbits it generally lasted a matter of weeks. White mice were not susceptible. The anaphylactic condition could be avoided by: (1) giving series of injections at short intervals; (2) giving minute doses of antigen; (3) by heating the serum; (4) by anæsthetising the guinea-pig before inoculation; and (5) by giving doses of calcium chloride, &c. Dr. Emery believed in the beneficial effect of calcium chloride in preventing serum sickness. He also made brief reference to the rôle of anaphylaxis in general medicine in cases of food poisoning, susceptibility to certain drugs, &c., and in tuberculosis and other infective diseases.

Dr. SCOTT (London) then proceeded to discuss the source and probable nature of the anaphylactic poison. The poison responsible for symptoms of anaphylaxis, the anaphylactin in Friedberger, is regarded by him as being derived from the various antigens which are capable of setting up the supersensitive state, the hypothesis being that the complement acts as the antigen through the intermediation of an antibody, probably the ordinary amboceptor, precipitin, or lysin. The possibility that it is not the antigen but the amboceptor, normal or immune, which provides the poison must be considered in the light of the experiments of Keysser and Wassermann. These observers have prepared anaphylatoxin by digesting inorganic suspensions—kaolin and barium sulphate—with fresh guinea-pig serum. Here no antigen is present. Normal amboceptor is apparently the only substance capable of providing the toxin.

Professor G. SIMS WOODHEAD (Cambridge) continued the discussion. He stated that 15 years ago, when working with some diphtheria and other antisera, a batch of guinea-pigs which had been previously used all died from subsequent inoculation. In the light of recent work he now recognises that they were typical instances of anaphylaxis. Further, when working with "serum toxin" as introduced by Cartwright Wood, they sometimes gave injections of unheated serum toxin, and these injections were followed by complex symptoms which may be compared to Arthur's phenomenon, and he felt sure that they were producing local anaphylaxis. He agreed with Dr. Emery that the lytic changes in the cells and solid tissues must be taken into consideration, even though they might not be so important as those associated with the body fluids.

Professor A. S. F. GRÜNBAUM (Leeds) stated that in certain cases anaphylactic phenomena had appeared in man after the sixteenth or later injection of antituberculous serum in relatively large doses. This is not easily explained by current theories. Antitoxin itself did not play any part in the phenomenon of anaphylaxis, and he thinks that disease might modify the anaphylactic state. He quite agreed that keeping the serum diminished the amount of anaphylaxis. Was this the result of loss of complement? He suggested that the following facts require taking into account: (1) nature of disease; (2) age of serum; (3) probability of presence of toxin in the serum; and (4) possibility that repeated injections of serum acted like repeated injections of bacterial vaccine, and produced a negative phase.

Dr. GOODALL (London) asked Dr. Emery whether serum disease in man meant anaphylaxis. In his experience the usual result of giving serum in man was negative in about 70 per cent. of cases. Some got serum disease generally in from seven to nine days or up to three weeks. Sometimes symptoms came on immediately after the second injection, and again sometimes in a day or two. He drew attention to the frequency with which those who suffer from asthma get serum sickness. In fact, he would not advise anyone to have serum who suffered from asthma. He stated that he had seen serum sickness simulate measles very closely. He noted that patients suffering from diphtheria who got serum sickness did very well. Serum sickness, in his opinion, is less frequent now than formerly.

Dr. JAMES RITCHIE (Edinburgh) stated that he was anaphylactic to animals, and that the smell of such an animal as the horse gave him bad attacks of asthma. He had been exposed to the action of tetanus toxin, and as a result had injections of antitetanic serum. In about two hours he had an attack of asthma with severe urticaria. He would not again use antitoxic serum without considerable hesitation. He then detailed his work with Dr. Miller on the complement fixation test in tuberculous cases. The method he used was an elaborated Wassermann. His clinical experience went to prove that cases treated with tuberculin did better than untreated cases. Cases which gave the complement fixation test always proved to have multiple foci.

Dr. EMERY replied briefly to the questions asked, and stated that persons fed on raw horseflesh and the expressed juices always had serum sickness when tested with an injection of horse serum. He thought that probably there is more horseflesh eaten than is suspected. Boiling does not destroy its power of sensitising animals, though it destroys it sufficiently to make it impossible to test for it.

STATE MEDICINE AND INDUSTRIAL DISEASES.

WEDNESDAY, JULY 26th.

President, Professor ALFRED BOSTOCK HILL (Birmingham).

The PRESIDENT, in the course of his introductory remarks, said that in a public health sense, tuberculosis was the one pressing problem ready to be dealt with by every means in

their power. There was another point on which he thought a word not out of place. That was the marked change which had taken place both within and without the profession in the conception of State medicine and State hygiene. Intimately associated with the work of the hygienists was that of amelioration, in which all branches of the profession must take part if the national work was to be done satisfactorily. It was absolutely essential for their work that they should carry with them public opinion. The public must lean on the dicta of the physician and surgeon, but they would not lean on the dictum of the medical officer of health—the man in the street would not—until they were sufficiently educated and convinced of the importance of the work. Therefore, one of their principal duties at present was the education of the public in matters of hygiene.

Dr. JOHN ROBERTSON (Birmingham) read a paper on

The Notification of Tuberculosis.

He said that the most important objective in the prevention of disease was an accurate and speedy method of ascertaining where disease existed. Little or no value could be attached to notification if nothing followed the receipt of it. There must be machinery not only for prevention but also for treatment. He thought the Local Government Board had acted wisely in delaying general compulsory notification, because little or no means were in existence for dealing with patients in the direction of cure or prevention. Provided that they had the machinery for dealing with the notified case, and that they did not harm the patient by bringing down on him all the restrictions which applied to the small-pox patient, there appeared to be a necessity for compulsory notification, not only that their statistics should be as complete as possible, but that the exceptional patient should not be able to raise an action for damages which he alleged to be due to notification. There was one objection to compulsory notification which did not now exist. He referred to the practice of not telling the patient the true nature of his disease. The medical attendant must do this now if the patient were to be treated by modern methods.

Mr. A. E. LYSTER (Chelmsford) read a paper on

Sanatoriums.

He admitted that sanatoriums must play some part in solving the tuberculosis problem. Those in authority and occupying high places both inside and outside the profession said that the sanatorium was the chief solution of the problem; so much so, that the Chancellor of the Exchequer had announced his intention of spending 1½ millions in one year and 1 million each succeeding year mainly for the provision and maintenance of sanatoriums. Mr. Lyster contended that sanatoriums should occupy quite a subsidiary place in the solution of the problem. It was quite easy to carry out sanatorium treatment in the homes of at least four-fifths of those affected, and this could be done by providing a habitable shelter at home. The utility of the sanatorium was grossly exaggerated. He did not believe the statistics published by sanatoriums; he knew they were untrustworthy and misleading. Their cases were most carefully selected. He treated all his own cases in their own gardens in canvas shelters. No better way could be devised for isolating a sufferer than by isolating him in a habitable shelter in his own garden, where he could be tended by those near and dear to him. He suggested there must be compulsory notification, and then that a habitable shelter should be provided for those who had garden or backyard space. For those who had no such space he suggested that instead of providing sanatoriums every sanitary authority, or, if there was to be a National Tuberculosis Committee with local advisory committees, that such be empowered to purchase land in the vicinity of the town, upon which should be built cottages according to the number of cases; that a small garden should be allotted to each, and that a habitable shelter should be placed in each garden. An allowance should be made to the sufferer according to circumstances.

Dr. R. W. PHILIP (Edinburgh) read a paper on

Tuberculosis Dispensaries.

He said that the great purpose of tuberculosis dispensaries was that there should be no case of the disease, even in its earliest stages, undetected or uncared for. It was best in the interests of the antituberculosis campaign that the dispensary should be constituted a separate institution. To link it with the existing general hospitals was likely to lead to failure and disappointment. He wanted the disease to be taken as a special study worthy of the closest thought and highest effort. There was risk in making the dispensary merely a part of the office of the medical officer of health.

Dr. W. CAMAC WILKINSON (London) said that tuberculin dispensaries offered not only the best but the only means of satisfactorily dealing with the problem of tuberculosis among the poor. It was simple, cheap, effective, and comprehensive. There were 5000 cases in Birmingham urgently needing help, and there was no other way to help them than through tuberculin dispensaries. Sanatoriums only dealt with 10 per cent. of the sufferers, and the amount spent upon them was more than sufficient to provide the best form of treatment for every victim of the disease.

Dr. C. KILLICK MILLARD (Leicester) said that the Corporation of Leicester had just decided by a unanimous vote to start a municipal tuberculosis dispensary. He was satisfied that there was nothing antagonistic between sanatorium treatment and tuberculosis dispensaries, or tuberculin dispensaries. He believed that tuberculin had a great future before it, and if further experience justified present hopes it followed that tuberculin would be used in every dispensary and sanatorium. The health department, guided by the medical officer of health, was necessarily the centre of all effort for the prevention of disease, and he thought it was a mistake to put dispensaries under separate control.

Sir WILLIAM J. THOMPSON (Registrar-General for Ireland) said that since 1907 the death-rate from tuberculosis in Ireland had fallen from 2·7 to 2·3 in 1910 per 1000. This meant 1663 less deaths from consumption, or an average of 32 deaths less per week. The tuberculosis death-rate in Dublin had fallen from 4·6 to 3·7 in the same time. This had been brought about mainly by the work of the Women's National Health Association. A most important work of this association was the "after-care of patients" who had been already at sanatoriums. The association felt that patients very soon lost what they had gained at the sanatorium if they were allowed to go back to the wretched surroundings, but if these patients were encouraged and helped to carry out the sanatorium treatment at home it would put them over that dangerous stage between being discharged and able to take up full work.

Dr. HALLIDAY G. SUTHERLAND (London) said that tuberculin was used in dispensaries both as a diagnostic and therapeutic agent. It was used in selected cases, as indeed it had been in Germany and all over the world, but it should not be divorced from general and medicinal treatment. There was no specific for tuberculosis. Dr. Wilkinson and his school regarded the tuberculin reaction as specific. That was quite wrong. It had been absolutely proved that the reaction occurred in typhoid fever, measles, pneumonia, and syphilis. Further, 70 per cent., even of a healthy German cavalry regiment, reacted to tuberculin. If they had gone to Dr. Wilkinson no doubt they would have added to his list of cured. It was a great mistake to divorce tuberculin from other forms of treatment.

Dr. R. MURRAY LESLIE (London) said that they were in agreement with Dr. Philip in regard to the paramount importance of domiciliary visitation in the prevention of tuberculosis, and he would specially draw attention to the valuable work in this connexion done in the rural districts by the caravan crusade against tuberculosis carried out in recent years by the National Health Association of Ireland and the Women's Imperial Health Association of Great Britain. At the best, sanatorium treatment was only suitable for a small fraction of the cases, the great bulk of which must be dealt with by agencies such as anti-tuberculosis dispensaries. Tuberculin treatment was simply one of many methods which had its due place in the treatment of this disease, and if scientifically valuable would be used in tuberculosis dispensaries, sanatoriums, and elsewhere.

Sir WILLIAM OSLER (Oxford) pleaded for the association of the tuberculosis dispensary with the general hospital and county infirmary.

Dr. J. C. MCWALTER (Dublin) said that the ordinary opinions as to sanatoriums were based on fallacies. It would cost at least £40,000,000 a year to treat all the cases of tuberculosis in Great Britain. The Chancellor of the Exchequer was about to allow only £1,500,000 a year. It would be far cheaper to have convalescent homes where a

patient could be treated in the pretuberculous stage. They ought to hesitate before placing a burden on the ratepayers, because the great cause of sickness was poor food and bad housing.

Dr. IDA E. FOX (Ashover Sanatorium) spoke about the home treatment of tuberculosis, and said it was of little use unless preceded by sanatorium treatment.

Dr. W. B. KNOBEL (Belbroughton) said that the cause of phthisis was infection plus loss of immunity; that infection was to be found especially in milk. Loss of immunity produced by bad hygiene or some other condition occasioned the disease. The cure of phthisis lay in a restoration of immunity, and the permanence of the cure depended upon after-care, in which the tuberculosis dispensary was of great value. Many cases were undoubtedly cured by tuberculin alone, but many were cured by sanatorium treatment alone. More than these together could be cured by sanatorium treatment plus tuberculin, and more still would be cured by those two plus some method of dealing with secondary infections.

Dr. A. H. BYGOTT (Barking) said that the medical officer of health did not want to interfere with the person who conducted the dispensary; his object was simply to coördinate the work with others, and it was desirable that he should do so.

Mr. H. J. EGERTON H. WILLIAMS (Sheffield) said that it seemed to him that in the present state of their knowledge and the difficulties of coming to a conclusion as to whether this or that case was cured, it was sufficient for corporations to undertake the education question for the present.

The PRESIDENT, in conclusion, said that sanatoriums alone did not solve the problem, and the same might be said of the tuberculosis dispensary of Dr. Philip, the tuberculin dispensary of Dr. Camac Wilkinson, and the shelters of Mr. Lyster—all were useful under certain conditions and could not be neglected, but by themselves had only limited applications.

Dr. F. E. WYNNE (Leigh, Lancs.) read a paper on

Domestic Hot-water Supplies as a Factor in the Production of Lead Poisoning.

He said that he wished to draw attention to the enormous excess of lead which he found in samples taken from the hot-water taps of private houses. In 30 observations of water taken from houses in all parts of the borough of Leigh there was invariably lead in the sample taken from the hot tap, even when the cold water showed none, or only a trace. In several cases the hot water contained over 2 grains of lead to the gallon. A similar state of affairs had since been observed at Ashton-under-Lyne. In his annual report for 1910 the medical officer, Dr. J. W. Talent, remarks: "During the year samples of drinking water were tested for lead—25 taken from cold-water taps, 6 from hot-water taps. Of those taken from the cold-water taps, three showed slight acidity, but no lead was present in any. Of the six taken from the hot-water supply, three showed a marked quantity of lead. It is evident that anyone drinking water from the hot-water tap in such cases as the three in question would run a decided risk of lead poisoning. The matter was freely discussed in the local press, and an advertisement pointing out the danger was inserted in the same." This discrepancy in the amount of lead contained in the hot- and cold-water supplies was altogether too great in the case of Leigh water to be accounted for by any possible increase of the solvent power of the water due to its temperature, and it was also out of proportion to the extra length of piping through which the hot water passed. It was clear, therefore, that the hot water was somewhere exposed to lead in a way in which the cold water was not. After a little inquiry Dr. Wynne learned that this contact took place in the so-called copper cistern, the great majority of which were heavily weighted with lead.

Dr. J. BROWN (Bacup) said that Dr. Wynne had done a public service in directing the attention of the medical profession to the danger of the fraudulent use of lead in the cisterns sold as copper. No doubt that accounted for the large amount of lead, viz., 2 grains per gallon, found in some samples. Usually there was a long length of lead pipe to the hot-water tap.

THERAPEUTICS, INCLUDING DIETETICS.

WEDNESDAY, JULY 26TH.

President, Sir ROBERT M. SIMON (Birmingham).

This Section met in conjunction with the Section of Anatomy and Physiology. A discussion took place on

The Merits of a Relatively Low Protein Diet.

Professor CHITTENDEN (Yale University), in opening the discussion, made the following statement:—1. Dietetics as a part of the physiology of nutrition is entitled to the same careful and thorough study as any other branch of biological science, while the opinions and theories connected therewith should be formulated upon evidence that is both comprehensive and reliable. 2. It is a fair argument that the quantity of food consumed daily should be proportional to the needs of the body. In order to avoid excess or deficiency, it is important to ascertain what the real needs of the body for food are; how much food is needed by the average man under ordinary conditions of life to repair tissue waste and to furnish fuel for the required energy. It is not the part of wisdom to accept unquestioningly dietary standards based simply upon the everyday habits of mankind under the assumption that because civilised people make a practice of eating daily a certain amount of food, that quantity must represent the real needs of the body. 3. Various data are presented tending to show that the ordinary conception of the protein requirement of man is an exaggerated one. A large number of data recently collected among the American people indicates that many people at least, apparently in health and vigour, and with ordinary resistance to disease, do live at a much lower level of nitrogen metabolism than the ordinary accepted standards call for. Additional experiments just completed corroborate the view that normal individuals are able to maintain their usual condition of health, with, indeed, more or less improvement, on relatively small amounts of protein food. Bio-chemical study of these individuals shows that their metabolism is unimpaired. The partition of urinary nitrogen, &c., is in nowise disturbed. Utilisation of the nitrogen of the food, as well as the fat, is maintained at the proper level on a relatively low protein diet. 4. Various data from State institutions are in harmony with the view of the adequacy of a relatively low protein diet. 5. Brief discussion of the results presented by other investigators in the study of protein metabolism, as the people of Bengal, leads to the conclusion that the alleged bad effects of low protein intake are not to be associated with the quantity of nitrogen, but with other factors, such as the character of the food, involving its availability, &c. An attempt is made to show the necessity of a ration that is well balanced—one in which the various physiological factors are given due consideration. Nitrogen and calories by no means constitute the only elements to be considered in a so-called standard dietary. Distinction is to be drawn between the needs of a growing organism and the needs of an adult who has attained his growth. The need of protein per kilogramme of body weight in the two cases must be different. Experimental data, however, show that even in the early periods of growth the protein of the food constitutes a surprisingly small part of the diet of the suckling infant. The fully-developed man, having an abundance of fat and carbohydrate in a readily available form to meet the energy requirements of his body, can, it is believed, live with perfect health on a few grammes of nitrogen per day. To serve its full purpose in the economy, however, man's food must be in a form readily assimilable, free from a large excess of indigestible material.

Dr. D. CHALMERS WATSON (Edinburgh) said that the excess of protein commonly taken was disposed of as waste and affected individuals differently. The tuberculous apparently thrived on more, while the gouty tolerated less. A chart was exhibited which showed a progressive increase of meat consumption rising from 3–50 lb. per head during the past 50 years. Experiments illustrating the effect of bread and flesh feeding on animals were cited, showing in the latter an increase in the fæcal nitrogen. Sections of the kidney showed in the bread-fed animals granules restricted to the base of the epithelial cells, while in those on a meat diet the granules were widely distributed in the cells indicating increased functional activity. A further illustration of comparative diet effects was afforded by comparing young

rats of the same age, fed respectively on bread and milk and on meat, those on the carbohydrate diet being half as large again as those fed on meat. Sections through the nasopharynx showed healthy mucous membrane in the bread-fed rats, but a state of catarrh and shedding of epithelium in those fed on meat.

Lieutenant-Colonel C. H. MELVILLE, R.A.M.C., compared the deductions from experiments and experience, commenting on the limitations and fallacies of the former, and the broad and natural conditions in the latter. He advanced the view that a liberal protein diet was adopted by the conquering races, while these inferior in courage and strength were addicted to a carbohydrate diet, and not the best of that, like the inhabitants of Southern India. Experiments carried out with carefully prepared and regularly administered food in good quantity and of good quality might give good results, even with a small proportion of protein, but taking things as they came and obtaining such food and in such condition as they were able most men required a higher proportion of protein in order to maintain their health and powers. Indeed, it was more a question of quality than quantity, depending largely on the proportion which could be digested and assimilated.

Dr. ROBERT HUTCHISON (London) said he believed that for the average mortal the question of excess of protein was not as important as many appeared to think. Some cranks and faddists assumed a strong attitude against free consumption of protein, but Nature said, "You need not trouble, my children, I have settled this matter long ago." Experience was the best test of truth and constantly exposed the theorists. He characterised the experiments of Dr. Watson Chalmers as "solemn trifling." Apart from the protein factor there were a thousand differences between a meat and lactocarbohydrate diet which he had not taken into account. The diagram representing the supposed increase in meat consumption per head was specially misleading, as it only represented imported meat with a rapidly increasing population and took no account of home-grown flesh food which alone sufficed for the community 50 years ago. Moreover, the increase shown was associated with a progress in improvement in the health of the community. In spite of the relatively low protein equivalent of milk, this represented a high proportion compared to bodyweight in an infant. There was no definite evidence that excess of protein did any harm or was really accountable for the occurrence of gout or renal disease. Could it be said that Professor Chittenden had proved the security of a low protein diet or had disproved the advantage of excess. For there was an advantage in stimulating metabolism which meant fuller life, fuller efficiency, and greater resistance to disease. There might be an economical advantage, a low protein diet was cheaper.

Dr. WILLIAM RUSSELL (Edinburgh), who professed himself a warm disciple of Professor Chittenden, said that in regard to the numbers of persons suffering from protein excess there was presented a scientific basis for conclusions that had been arrived at clinically. He emphasised the special value of Professor Chittenden's work in connexion with groups of individuals continuing an ordinary life and unrestricted diet, though one which was accurately estimated. Physicians had to deal with patients who were often overstraining their powers of assimilation in endeavouring to maintain their strength, and the question to him was, did they need to do so? Apart from other things, there remained the baneful influence of the intestinal effects of excess of protein.

Dr. ALEXANDER HAIG (London) also supported the views expounded by Professor Chittenden. He contended that the habits of mankind could not be regarded as a standard of what was needful and wholesome. The standard to be aimed at was represented by 90 grammes of protein daily, or 9 grains per pound of bodyweight. Any gross deviation above or below this led to ill-health. Relative starvation reduced the output of uric acid, slowed the capillary circulation, caused cardiac dilatation, and impaired the quality of the blood. Much more was needed by the very young. A nursing infant received 31 grains per pound of bodyweight and a child of 12 months 40 grains. This produced a physiological balance. He added, deficiency of salt led to defective formation of hydrochloric acid.

Dr. E. P. CATHCART (Glasgow) insisted that the quality rather than the quantity of protein was important. Experiments on dogs showed that the minimum dietary containing the proper amount of protein was attained with dog's flesh. Throughout the animal kingdom there was idiosyncrasy in relation to food. The protein supplied an important stimulant to digestion.

Dr. A. C. F. RABAGLIATI (Bradford) delivered a very complex statement on the distribution of energy, which was a matter that went much beyond protein metabolism.

Dr. WOODS HUTCHINSON (New York) expressed his sense of the importance of Professor Chittenden's work. There was a wide range in the potentiality of proteins, that of fish being much lower than that of animal flesh. Experiments with isolated lengths of intestine had shown that fæcal matter was not merely the residue remaining in the bowel, but was matter that, having been digested and absorbed, was resecreted into the intestine after rejection in the body, which only selected and retained what was suited to ready assimilation. Experience of food values had been tested through centuries. Nations, classes, and individuals had determined what was most suitable to each. On the whole, it might be said that those most extravagant in the matter of protein consumption were superior in power to others. Japanese vegetarians settled in America improved vastly under a more liberal protein diet, so that whereas on arrival their strength equivalent was only 35 per cent. of a white man it increased with an extended diet to 65 per cent. Excess in meat diet was by no means the only factor in the production of gout, and in regard to kidney affections two-thirds were the result of direct infection. A due proportion of protein and carbohydrates was necessary in all diseased conditions, even diabetes.

Dr. J. HADDON (Hawick) gave his experiences as a fruitarian and vegetarian with great enthusiasm, noting a doubling in the output of urea attending an animal diet.

Dr. A. B. OLSEN (Caterham), speaking of sanatorium treatment, said a vegetarian dietary had been adopted by choice, the protein element being gradually eliminated.

Professor CHITTENDEN, in reply, pleaded for reconsideration and progress in dietetics.

TROPICAL MEDICINE.

WEDNESDAY, JULY 26TH.

President, Sir FRANCIS LOVELL, K.C.M.G. (London).

The PRESIDENT, in opening the proceedings, said he did not propose to give a formal address nor make a lengthy speech. He would confine himself merely to a few words in view of the amount of work which the section had to get through. He could not refrain from referring to the great loss which the Liverpool School of Tropical Medicine had sustained through the untimely death of Sir Rubert Boyce, F.R.S., who had been a prominent worker in that school. He himself could testify to the great advantages which certain colonies had derived as a result of Sir Rubert Boyce's visits. On his advice measures had been initiated which had already borne fruit, and would continue to do so in the future, conferring marked benefits upon the inhabitants of those colonies. The President also alluded to the cordial relations which now existed, and were likely for long to exist, between the schools of tropical medicine in London and Liverpool. Their aims were similar, and in their various researches the workers of the respective schools were constantly in communication with one another with mutual benefit. He congratulated the Liverpool School upon the conferring of the honour of K.C.B. on Professor Ronald Ross.

Dr. CHARLES J. MARTIN (London) then opened a discussion on

Plague—in its Endemiological and Epidemiological Aspects.

He said that as it was necessary to be concise he would confine his remarks chiefly to the occurrence of plague during the last 15 years. He could not marshal all his evidence before them in the time at his disposal nor refer to all the authorities he had consulted. But when the paper he had prepared came to be published it would be found to contain a copious list of references. With the help of lantern slides Dr. Martin showed, along with other views, some maps indicating the various recognised endemic areas of plague throughout the world. In the majority of these animal plague was known also to occur, and in those where rat plague was not reported he thought that closer investigation would furnish proof of its existence. It was hardly possible in the limited time at his disposal to trace how, of late years, plague had diffused itself all over the world. Dr. Martin then paid a tribute to the value of the annual summaries of

the incidence of plague in various parts of the globe begun by the late Dr. Netten Radcliffe for the Local Government Board and continued in recent years by Dr. R. Bruce Low. Appearing in 1894 at Hong-Kong and Canton, the infection in all probability being introduced from the endemic area in the province of Yunnan, plague invaded Formosa in 1895 and reached Bombay in 1896. Spreading gradually over both hemispheres, by 1900 all quarters of the globe became involved to a greater or less extent. The problem was to ascertain how plague had been spread. Bubonic plague was not regarded as directly infective, but nevertheless it was potentially a source of infection. For plague bacilli might settle in the lungs and then be coughed up, infecting the air of the sick room. Some epidemics of pneumonic plague are thought to have started in this way. It was an interesting question how primary plague pneumonia arises. It might start from a secondary pneumonia occurring in a bubonic case, the expectoration of the patient, often suffering from a wandering delirium, being spat all over the bed and the floor or walls of the room, such cases being difficult to control. Afterwards such infection might breed true and produce only pneumonic cases, becoming in this way a man-to-man infection. But the present pandemic of plague had been characterised by a paucity of pneumonic cases. The disease had spread over the world as a bubonic infection. The association of animal plague with that of man had long been recognised, and all authorities were now agreed that rat plague was immediately associated with the development of human plague epidemics. How, then, is plague spread from rat to man? Two suggestions had been put forward: 1. That infected rat excreta deposited on the ground might reach abrasions or scratches on the hands or feet of human beings, and that possibly rat excreta might reach grain and other food for man and give rise to infection through the alimentary canal. Experiments have shown that though these theoretical dangers might exist they could not have played any part in the production of the extensive outbreaks which had occurred of late years. 2. That, as in some other diseases, the plague bacilli were transmitted from animals to man by a suctorial insect; and the insect concerned had been long suspected to be the flea. After referring to the work of investigators in various parts of the world, showing the part played by the flea in carrying plague from rats to man, Dr. Martin related a number of experiments in India devised to show that the flea was the transmitting agent. It had been objected that rat fleas did not bite man, but Liston in India had demonstrated conclusively that the Indian rat flea did bite man when it could not find a rat to feed upon. Moreover, when rats are dying from plague the fleas leave them and seek another host; the more rats that die the more fleas are looking for other hosts; thus man is attacked more frequently during epizootics than at other times. Bubonic plague is caused by the puncture of the skin by the infected flea. General insanitary conditions which foster rats aid in the diffusion of plague. Dr. Martin spoke of infection by clothing sent long distances. In these cases fleas were generally wrapped up in the bundle. The seasonal prevalence of epidemics and epizootics of plague depended on some biological factor. Experiments showed that the number of fleas on rats varied with the season, the maximum number being found on rats in March and April, which in Bombay were the worst months of plague epidemics. Temperature above 85° F. appeared to have the effect of diminishing the amount of plague in India, while a temperature below 80° increased it. Any measures which prevented transmission of fleas to animals would prevent infection by plague. The rat-flea theory, in short, explains all the epidemiological facts.

Professor W. J. R. SIMPSON (London) congratulated Dr. Martin on his able paper. The facts adduced seemed to show the association of human and animal plague with the flea as transmitting agent. His own opinion was that the communication of plague through infected food could not be altogether excluded. Referring again to fleas, he said that rat-catchers in their work got infected by fleas and became infected by plague. He thought, however, that the importance of the flea might be over-estimated and might lead to neglect of other agencies. He compared the importance of the flea in plague to that of the fly in typhoid fever. The theory of insect carriers tinged our ideas. Insects were carriers of protozoal diseases which have a definite life-history in the insect, and such disease could not be spread in any other way, but it might be otherwise in the case of a bacterial infection like plague. He admitted that fleas play a part, but not the whole part, in the spread of plague epidemics. Enough, however, had been proved about the rat-flea theory to make it the basis of administrative action in India. He advocated more application of the accumulated knowledge as to plague, for little effect seemed so far to have followed the measures employed, more than 600,000 persons having died in India from plague in the first half of the present year.

Dr. MAJOR GREENWOOD (London) dealt with some of the statistical points connected with plague prevalences in India. He spoke of the severity of the disease in some Punjab villages and believed that three factors influenced the severity of these local epidemics: (1) the size of the village; (2) the period of the plague season at which the village was attacked; and (3) the situation of the village in the infected area. He thought that perhaps the Indian experience did not apply to all epidemics in other parts of the world.

Dr. F. M. SANDWITH (London) spoke of the behaviour of plague in Egypt. Hitherto the cases in Lower Egypt had been bubonic as a rule; those in Upper Egypt pneumonic.

Dr. H. S. STANNUS (Nyasaland) suggested that congregation of fleas on rats at the breeding seasons might be associated with the behaviour of plague, rat nests being notoriously infested with fleas.

Dr. L. W. SAMBON (London) gave a large amount of information about the old beliefs as to plague in animals. He thought that recent writers had forgotten the old ones. The cat and the dog were viewed as dangerous in reference to plague in the old days, and their destruction was advised as a preventive measure. He spoke of the bed-bug as well as the flea as a transmitter of plague.

Dr. A. J. CHALMERS (Colombo) referred to the experience of Ceylon, to which island large numbers of coolies from India were brought annually by ships. He thought that having regard to the large amount of immigrants from India infection might be likely to escape detection, and there were plenty of rats and fleas in Ceylon. Occasional cases of plague had occurred on coolie ships, but the disease had so far never gained a footing in Ceylon. He could hardly account for this immunity.

Dr. A. BALFOUR (Khartoum) said that there had not been any epidemics of plague in the Soudan, but whether this had relation to the hot climate he could not say. He spoke of iodoform as likely to be useful as a practical measure in keeping off fleas; this suggestion had been made by a German observer whose name he could not recall.

Mr. JAMES CANTLIE (London) believed that the seasonal variations in plague incidence had relation to temperature. He spoke of climatic bubo, which he regarded as a forerunner of plague, such cases occurring, in his experience, before a plague epidemic and also after it had subsided. The bacillus of climatic bubo, sometimes termed pestis minor, did not cause plague; but he believed it to be a stage in the development of the true plague bacillus. Step by step the bacillus of climatic bubo might increase in virulence until a plague epidemic was established.

Dr. G. F. PETRIE (London) said there had been no concurrent spread of rat plague in Manchuria during the recent human epidemic. There were plenty of opportunities for rats to acquire plague during the epidemic; for example, by gnawing human corpses, many of which remained unburied during the height of the outbreak. The origin of the Manchurian epidemic was obscure, but there was suspicion that the tarabagan, a species of marmot, which was known to be susceptible to plague, might have been an agent; the evidence implicating it was, however, indirect. The flea which lived upon the tarabagan bit human beings. This animal hibernated during the cold weather, and it was thought that perhaps the fleas also hibernated, and thus the infection persisted from one season to another.

Dr. MARTIN then replied upon the various points which had been raised. He did not regard the rise in temperature as inhibiting the plague bacillus. As regarded iodoform, he admitted it would keep off the fleas, but it would also, he suggested, keep away one's fellow men, the odour being so obnoxious to most people. He did not pretend to explain the mediæval epidemics on our present knowledge. The spread of the disease in the olden time was far more rapid than in the present day. He thought that if the characters of the plague bacillus were changed a little, this would produce a septicæmic form of plague as in the rat, and it

would then spread like wildfire. He had a conviction that the flea in biting man introduced into his blood the contents of its stomach, but this had not yet been demonstrated. The flea passed large quantities of fæces on the skin, and these often contained virulent plague bacilli, which, if rubbed into the punctures made by the flea, inoculated plague into man. There was as yet no proof that the flea's salivary gland was infected by the plague bacilli. He agreed with Dr. Sambon that dogs and cats might become sources of danger to man. He had no experience of climatic buboes, and there was no evidence that these were a manifestation of the attenuated virulence of plague bacilli.

The proceedings then terminated.

THE ANNUAL EXHIBITION.

(*Continued from p. 338.*)

II.—DRUGS.

THE display of drugs was full of interest, though there were fewer exhibits in this section than is usually the case. That fact, however, was not without its advantages, since a more complete and leisurely inspection could be made of the good things that were shown. Once again it was evident that the greatest care and skill are being exercised to obtain a high degree of purity of drug and to present it in a form best suited to the needs of the case. "Elegance," too, was a feature of the various pharmaceutical exhibits shown, and this department of the exhibition lent decided colour and decorative effect to the vista of stalls. In many instances there were some attractive preparations in the shape of stately columns of crystal growths or of specially prepared crystallised drugs. At the stall of the Hoffmann-la-Roche Chemical Works, of 7 and 8, Idol-lane, London, E.C., there was a fine display of alkaloids and chemicals. Crystalline crops of strychnine and crystalline specimens of guaiacol formed part of the decoration of the stall, but, in addition, there were digalen, a standardised preparation of digitalis, giving, it is said, the typical action of the drug without any unpleasant by-effects; omnopon, a soluble opium containing the total alkaloids of the drug; secacornin, a special standardised preparation of ergot; thigenol, an organic sulphur compound having antiseptic and antipruritic properties; and thiocol, a soluble and odourless guaiacol compound which has been used with good results in pulmonary diseases, one advantage of its use for children and delicate persons being that it is said not to produce gastric disturbances. The exhibit of Messrs. Burroughs, Wellcome, and Co., of Snow Hill Buildings, London, E.C., was most tastefully executed and had an additional attraction in the shape of a series of growing medicinal plants—nux vomica, digitalis, cardamoms, aconite, colocynth—brought from the botanical gardens in the firm's grounds at Dartford, where their fine chemical products are manufactured. The list included a series of tabloid and soloid products, Wellcome brand sera, vaccines, and tuberculins, and epinine, the synthetic substance possessing the suprarenal action in a high degree. Messrs. C. J. Hewlett and Son, Limited, of 35–42, Charlotte-street, London, E.C., showed a number of pharmaceutical preparations found to be of excellent service to the practitioner. Amongst them were a physiologically standardised ergot, a classic pepsin and bismuth mixture, "iodermiol," a non-staining and non-irritating preparation of iodine, and a series of concentrated liquors. Messrs. Southall Brothers and Barclay, Limited, of Lower Priory, Dalton-street, and Dale End, Birmingham, exhibited examples of their departmental work, laboratory equipments, chemical and crystallising laboratories (for iodine, potassium iodide, sodium sulphate, potassium citrate), standard tinctures from the galenical laboratory, palatable elixirs, glycerols and syrups, and so forth.

Messrs. A. and M. Zimmermann, of 3, Lloyd's-avenue, London, E.C., presented a large number of fine pharmaceutical products, including some organic silver preparations, organo-therapeutic preparations, and some recent remedies in the shape of Biebrich Scarlet R, which, it is said, promotes epithelialion of wound surfaces; amidoazotoluol, acting similarly but quicker; a new tuberculin (Rosenbach), an immune substance, "I.K.," and "nastin," employed by Professor Deycke in the treatment of leprosy. There were a good many objects worthy the attention of the medical man at the admirably set out stall of Messrs. Parke, Davis, and Co., of 50, Beak-street, Regent-street, London, W. The exhibits were striking in giving evidence of the advances made in pharmaceutical preparations and of a determination to meet the requirements of modern therapeutics. The exhibit included a series of serums and a complete list of the bacterial vaccines prepared under the supervision of Sir Almroth Wright in the laboratory of St. Mary's Hospital. There were also tuberculins for the ophthalmic and cutaneous diagnosis of tuberculosis, and a series of elegant standardised galenicals, as well as a pretty selection of "glaseptic" nebulisers and sprays.

Messrs. A. Wander, Limited, of 1 and 3, Leonard-street, London, E.C., in addition to bringing to the notice of the visitors their ovaltine, which, as our analytical columns have shown, is a combination of diastasic malt extract, milk, eggs (ovo-lecithin), exhibited a combination of malt extract with iron iodide, which is said to ensure the therapeutic action of iron and iodine without gastric disturbance or constipation, and to be free also from the effects known as "iodism." Messrs. Fassett and Johnson, of 86, Clerkenwell-road, London, E.C., exhibited for the Messrs. A. C. Barnes Company the silver proteid compound argyrol, which has been used successfully in ophthalmia and genito-urinary diseases; in addition, there was "ovo-ferrin," an iron proteid combination which is designed to avoid the undesirable effects of iron while securing its tonic action. There were excellent examples of fine pharmaceutical preparations and pure chemicals on the artistically arranged stall of Messrs. Brady and Martin, Limited, of Newcastle-upon-Tyne, who devote special care to the purity of therapeutic agents. There were an array, also, of capsules, pills, and tablets, and a series of physiologically, as well as chemically, standardised tinctures. There were some good old and new friends in the exhibit of Messrs. Oppenheimer, Son, and Co., Limited, of 179, Queen Victoria-street, London, E.C. Their "aeriser" is well known as an atomiser which "renders fluid like smoke"; the powder pill, called a "pulverette," has also been before the profession for some time—the drug in powder form is enclosed in a kind of eggshell made of sugar coating. "Grindeline" is a comparatively new preparation for asthma which is said not to induce a "drug habit"; it contains amongst other things grindelia with euphorbia, trinitrin, and potassium iodide. The exhibit included also a new preparation of bismuth and pepsin ("liq. gastro-rube"), mercury atoxylate cream, and an oxygen generator and "oxinhalator." Messrs. W. A. Wharram, Limited, of 115 and 117, Vicar-lane, Leeds, showed a series of elegant pharmaceutical preparations chiefly in liquid form. Such were a liq. bismuth co. c. pepsin, a linctus heroin hydrochlor., a liquor santali comp., and a liquor antisepticus, with thymol, eucalyptol, boric and benzoic acids as agreeable antiseptic agents. The exhibit included a neutral syrup of the hypophosphites and an iodine ointment, odourless and producing no stain. Lymphoid compound for oral administration and lymph serum for hypodermic use formed the subject of the exhibit of the British Organo-therapy Co., Limited, of Carlton House, Lower Regent-street, London, S.W. The claim urged in favour of these products is that they are valuable in the treatment of nervous and mental conditions arising from cell degeneration, disturbed metabolism, and auto-intoxication. Close by the Denver Chemical Manufacturing Company, of 41, St. Ann's-road, Bow, London, E., exhibited specimens of their anti-phlogistine, a scientific cataplasm which has been found of signal service in the relief of pain and in the reduction of inflammation and congestion. Miol (The Miol Manufacturing Company, Limited, 82, Southwark Bridge-road, London, S.E.) appears to be holding its own as a special food in debilitated conditions. It is composed, as has been shown in our analytical columns, of active malt with olive oil, iodine, and phosphorus, and is suggested as a pleasant and effective substitute for cod-liver oil.

Glycerophosphate preparations were given considerable prominence at the stall of Messrs. Huxley's Pharmaceutical Products Company, of 59, Dingwall-road, Croydon. Thus there was a non-saccharine syrup of acid glycerophosphates, a syrup of glycerophosphates with formates, with hæmoglobin, pepsin, red bone-marrow extract, and so on. The exhibit included a menthol and wintergreen cream, and sal-antisepticus (a powder containing well-known antiseptics). It is impossible in the space at our

disposal to enumerate all the fine pharmaceutical products exhibited by Messrs. Wyleys, Limited, of Coventry. There were some excellent liquores, tincturæ, and misturæ submitted for inspection, and many excellent forms of administration were shown, as, for example, medicated pastels, perles, and compressed tropels. We have already reviewed some of the surgical exhibits of Messrs. Reynolds and Branson of Leeds, but they are wholesale chemists as well as surgical instrument-makers, and their exhibit included some elegant drugs and pharmaceutical preparations, amongst which were a preparation of bismuth and pepsin, physiologically proved preparations of digitalis, ergot, Indian hemp, squill and strophanthus, suppositories of bismuth subgallate, and a series of admirable unguents. The Bayer Co., Limited, of 19, St. Dunstan's-hill, London, E.C., had an imposing show of many well-known pharmaceutical products introduced by them. Amongst new ones were adalin, a derivative of urea combined with bromine, described as a safe and efficient hypnotic; ferro-sajodin, a combination of iron with the well-known organic iodine compound, prepared for use in scrofula and rickets so as not to disturb the digestion; gynoval, a valerian derivative; sophol, a new organic silver compound for use in ophthalmological practice; spirosal, an external application for rheumatism; and thyresol, an advance on sandal-wood oil. The Charles H. Phillips Chemical Company, of 14, Henrietta-street, Covent Garden, London, W.C., exhibited two products, a milk of magnesia and a phospho-muriate of iron compound. The former is a uniform "milk" containing a specially prepared hydrate of magnesia, which serves as an excellent antacid; the latter contains the phosphates of potash, magnesia, lime, and iron, with the hydrochloride of quinine, a formula which indicates its value as a general tonic. Amongst the pharmaceutical preparations exhibited by Messrs. James Woolley, Sons, and Co., Limited, of Manchester, were a useful sodium phenate solution, a tablet containing the same agent plus red gum and eucalyptus oil, suggested for use in post-nasal catarrh and relaxed throat and in certain gastric troubles; a liquor thymol. alkalinus, a hæmoglobin capsule, and a series of soluble gelatin capsules. Synthetics were in evidence at the stall of Messrs. Zimmer and Co. (Frankfort-on-the-Main), who were represented by Messrs. Widenmann, Broicher, and Co., of 33, Lime-street, London, E.C. Amongst these may be mentioned allosan, a derivative of santalol, which has been, we understand, efficient in the treatment of gonorrhœa; euquinine, or ethyl-carbonate of quinine, which is tasteless, its action being physiologically that of quinine, but without "quinism"; validol (menthol and valerianic acid), a sedative and preventive, it is stated, of sea-sickness; and validol camphorate for allaying pain in dental decay.

The chief substance exhibited by the Saccharin Corporation, Limited, of 10, Arthur-street West, London, E.C., was novocain, described as "the non-irritant local anæsthetic." There is considerable evidence in its favour compared with cocaine, and its compatibility with the active principle of the suprarenal gland, as well as its complete solubility in water, are unquestionable advantages. There was also exhibited at this stall pergenol, a solid compound of hydrogen peroxide and borax, dissolving in water and yielding at once a solution of peroxide of hydrogen and boric acid, a powerful disinfectant and antiseptic fluid, the advantages of which in medical practice have already been described in our analytical columns.

It is probable, judging from the obvious attention which the visitors gave to the pharmaceutical products displayed, that this section proved to be next in interest to the surgical exhibits.

(To be continued.)

EPSOM COLLEGE: FOUNDER'S DAY.

THE annual distribution of prizes took place at Epsom College on Founder's Day, July 29th, in the presence of a large gathering of people, including Sir William Church, Sir Henry Morris, Sir Shirley Murphy, Dr. Norman Moore, Dr. Frederick Taylor, Dr. F. Needham, Mr. G. H. Makins, Dr. C. Caldecott, Mr. Purnell Purnell, Mr. Stanley Boyd, Dr. F. de Havilland Hall, and several distinguished laymen.

After service in the College Chapel the counting of votes for the Hodgkin prize took place. This prize is given in alternate years with the Wakley prize, and consists of an illuminated certificate and a cheque for £14, awarded on the recommendation of the masters and by the votes of the schoolboys. It was adjudged this year to G. N. Wrightson by a very large majority.

The visitors then inspected the handsome memorial tablet recently erected in the chapel to commemorate the long and valued services rendered to the College by the late Sir Constantine Holman. The tablet is made of alabaster and has two upper corner panels carved in slight relief on a gold mosaic ground. The cross at the top and the band between the narrow moulding are both of green Irish marble. The following is the inscription:—

To the Glory of God and in Memory of
Sir CONSTANTINE HOLMAN, M.D.,
Who devoted many years of untiring care to the welfare of this College, of which he was ever a steadfast friend and benefactor.
VICE-PRESIDENT OF THE COLLEGE, 1892-1910.
TREASURER, 1887-1906.
Born, 23rd October, 1829. Died, 18th August, 1910.

The headmaster, the Rev. T. N. H. SMITH-PEARSE, gave the usual report of the school work, and referred to the loss sustained in the deaths of Sir Constantine Holman and Mr. Hugh E. Vardon, the latter of whom had made provision for the "Hugh Vardon" scholarships. He spoke of the services rendered to public schools by Sir Henry Morris in connexion with the recent decision of the General Medical Council that public schools could be recognised as places at which the preliminary sciences might be studied, the time thus given being counted towards the first year of the medical curriculum. The well-equipped laboratories of the College had attracted much attention from visiting members of the General Medical Council.

Dr. NORMAN MOORE, who distributed the prizes, said that all the 11 great medical schools of London had boys from that College. He referred in succession to various additions to knowledge made by the different medical schools of London, and gave a very interesting account of them. A colleague of Sir Henry Morris, Sir Charles Bell, had made the second greatest discovery in physiology—viz., the existence of separate nerves for motion and sensation. He particularly dwelt on St. Bartholomew's, which was connected with our great foundation of liberty, for three persons of the foundation had been among those who obtained Magna Charta for us. The work of Epsom College, he said, was divided, like the work of most public schools, into two halves of study—literature and science. He discussed the advantages of a literary training, and impressed on his hearers the delights which literature, when it came to form part of their minds, would confer throughout life. He made a point of the appeasing influence of literature, showing how the old-time hostility between Highlanders and Lowlanders in Scotland had been dissipated as a result of the literature of Sir Walter Scott. As to science, he spoke of its unifying influence on mankind, and instanced among other things Kitasato's work. He urged his hearers to be followers of both literature and science, and contemners of neither.

Sir HENRY MORRIS proposed a vote of thanks to Dr. Norman Moore, and emphasised the connexion already pointed out between such a school as Epsom and medicine, the association between medicine and the hospitals, and of these with the development of science.

In addition to the ordinary school prizes certificates were presented to the members of the Officers' Training Corps, Cadet Officer Crimby receiving the King's Coronation medal.

Among pupils of the school who have been distinguished in various medical fields since last Founder's Day are R. A. F. Eminson and W. R. Wilson, who took respectively second- and third-class honours at the Natural Sciences Tripos at Cambridge; Captain H. C. Winckworth, R.A.M.C., created Chevalier of the Crown of Italy; J. A. B. Hicks, appointed assistant pathologist and curator of Westminster Hospital Museum; C. W. Morris, appointed house surgeon at University College Hospital; B. F. Eminson, who gained the William Travers prizes at Charing Cross Hospital for medicine, midwifery, and public health; B. C. Maybury, appointed casualty officer and resident anæsthetist at St. Thomas's Hospital; and H. G. Dodd, passed Second M.B. Durham with honours.

THE LANCET.

LONDON: SATURDAY, AUGUST 5, 1911.

The National Insurance Bill.

THE House of Commons during the week has been debating in committee what must be to our readers the most critical parts of the National Insurance Bill now that Clause 8 of this intricate and far-reaching measure has been temporarily settled. Clause 12 dealt with the provisions to be made in the case of contributors who are inmates of institutions such as workhouses or asylums which are supported by public authorities, or such as hospitals and sanatoriums supported perhaps by charitable and perhaps by public funds. Clause 13 dealt with the benefits to be administered by approved societies or Local Health Committees, and under it the whole question of club medical practice came in for discussion. Clause 14 dealt with the administration of medical benefits.

The position and future of the voluntary hospitals under the Bill was the subject of a very earnest debate on July 31st when Clause 12 first came up for discussion. There were those, on the one hand, who argued that the Bill would greatly increase the work thrown on the hospitals, while at the same time the financial position of these charities would be seriously hampered. Mr. AUSTEN CHAMBERLAIN, taking this view and speaking for 44 hospitals in the midland counties, maintained that the financial loss that these institutions would incur would be in no case under 50 per cent., and in some instances would reach 75, 80, or even 90 per cent. He emphasised the detriment to the public that would result from any such paralysis of the training institutions in medicine and surgery, and suggested various ways in which this difficulty could be met. Mr. LLOYD GEORGE considered that the fears as to the adverse effect on hospitals were exaggerated, and that the lessening of work and the new sources of income that would be tapped had alike been left out of consideration. He argued further that there was no ground to suppose that the contributions of either employers or employed would be materially lessened. Mr. AUSTEN CHAMBERLAIN, however, moved an amendment providing that any payment under the Act shall, if the patient be an inmate or patient of a hospital or institution supported wholly or partly by voluntary subscriptions, be divided between that hospital or institution and his dependents (if any) in such proportions as the Local Health Committee may determine. Dr. CHRISTOPHER ADDISON, speaking on this amendment, predicted that soon after the scheme was established there would be a great addition to the work of the hospitals. This would necessitate the organising of a proper standard between the hospitals and the insurance scheme and some organisation maintained, through the Local Health Committee was the proper way to deal with this hospital question. The sick fund was not the right fund out of which to take the money. This point of view was strongly supported by several members, and Mr. CHAMBERLAIN'S amendment was withdrawn. An amendment by Mr. LLOYD GEORGE, however, was carried to enable an agreement to be entered into with a charitable institution by an inmate who has no dependents, whereby his sick benefit may be paid in whole or in part towards his maintenance in the hospital. The amendment further provides that in the case of a married woman entitled to sick benefit in addition to maternity benefit, no part of the maternity benefit shall be paid to the dependents, the whole accruing to the hospital for her maintenance. Clause 12 was then agreed to, the debate in the House well reflecting the diverse views and necessary uncertainties of all who know the circumstances of hospital administration. No one can say under this clause whether the hospital incomes from charity will so seriously decline that the State, in the character of an increasing contributor, may not ask for some amount of control that would alter at once the existing conditions of scientific work and medical education.

The consideration of Clause 13 produced a debate that will be for many years memorable in the medical profession. The main lines of the discussion can be followed in the summary of our Parliamentary correspondent, while the daily press has done full justice to its enormous importance. The clause, as we have said, dealt with the whole matter of club practice, inasmuch as under it fell the question of how far the administration of medical benefits should remain with the various existing medical aid associations and how far with the Local Health Committees created by the Bill. In a simple amendment Dr. ADDISON proposed to transfer the whole of the administration of medical benefits from the various approved societies to the Local Health Committees, and supported the strongly manifested medical views in a convincing speech. He demonstrated quietly but effectively the public danger of permitting the management of what amounts to a national health service to remain under the control of organisations of varying ideals and different standards; while once again, and from each part of the House, Members heard the difficulties under which club practice has for so long been carried on, its inefficiencies, and its injustices to the medical profession. The Chancellor of the Exchequer, who allowed that he was personally in favour of the amendment, left its fate to the opinion of the House, when by the remarkable vote of 387 to 15 the administration of medical benefits under the Bill was transferred to the Local Health Committees. This may be regarded as a triumph.

Around Clause 14 the principal fight was now centred, for it will be remembered that Mr. LLOYD GEORGE definitely promised, during the debate on Clause 8, that if anything during the consideration by the Committee of Clause 14 should make it necessary—that is to say, that if it was found out of order or inconvenient to discuss such matters as wage-limit on Clause 14—he would undertake to have Clause 8 re-committed. In this way Clause 14 became

of vital interest to the medical profession, as being concerned both with the definition and distribution of medical benefits. We may take it for granted that every one of our readers knows, at any rate, the general bearings of the clause as it stood in the Bill. There were down no less than 14 pages of amendments to this one clause. Three were, however, of outstanding importance. The Chancellor of the Exchequer had put down an amendment to provide that the Local Health Committee should be able to make arrangements with duly qualified medical practitioners for insured persons to receive attendance and treatment "in accordance with regulations made by the Insurance Commissioners," and had set out at considerable length the provisions of these regulations. In this manner the Chancellor of the Exchequer proposed to provide a fair distribution of insured patients among the practitioners willing to attend and treat them, while the right on the part of an insured person was also recognised to select from a properly prepared panel the practitioner by whom he wishes to be attended. These proposals of the Chancellor, it may be remembered, were foreshadowed in the statement which he originally made to ourselves. Dr. ADDISON had put down an amendment providing that, under the regulations made by the Insurance Commissioners, authority should be given to the Local Health Committee administering medical benefits to arrange that persons whose incomes exceeded the limit fixed by the Insurance Commissioners should make their own arrangements for receiving medical attendance and treatment, the Committee contributing from the funds out of which medical benefit is payable towards the cost of such medical attendance and treatment. Dr. ADDISON'S amendment therefore touched upon the difficult subject of wage-limit in a judicious and tentative manner. More in keeping with the views of many general practitioners was the amendment to the same clause of Sir PHILIP MAGNUS, which provided that no insured person should be entitled to medical benefit if his average income from all sources in the calendar year preceding the date at which he became entitled to sickness benefit exceeded the sum of £104. Our readers know already from the long and accurate accounts in the daily press what was the fate of these amendments. In spite of some able arguments from its proposer and from Sir ROBERT FINLAY, Sir ALFRED CRIPPS, Sir HENRY CRAIK, and others, Sir PHILIP MAGNUS'S amendment for the fixation at £104 of the maximum income of persons to receive medical benefits under the Bill failed to secure support. The amendments of Mr. LLOYD GEORGE and Dr. ADDISON were accepted, and under these the Local Health Committees will be the arbitrators with regard to the payment of fees for medical services by insured persons able to do so. The clause as amended represents, we believe, the general expectation of the medical profession.

METROPOLITAN HOSPITAL SUNDAY FUND.—The Lord Mayor presided over a meeting of the council of this Fund which was held on August 1st at the Mansion House to receive the report of the Committee of Distribution. It was recommended that £56,500 should be distributed among 166 hospitals, 59 dispensaries, and 32 nursing associations.

Annotations.

"Ne quid nimis."

THE POST OF CHIEF MEDICAL OFFICER TO THE LONDON COUNTY COUNCIL.

WE announced last week with much regret the impending retirement of Sir Shirley F. Murphy, chief medical officer to the London County Council, consequent on the reorganisation of public health administration of the Council. On August 1st it was resolved by the Council "that applications be invited by public advertisement from qualified persons whose age will not exceed 50 years on Jan. 1st, 1912, for the position of medical officer of health of the County of London and school medical officer for the County of London, at a commencing salary of £1250 a year; and that members of the staff be not precluded from making applications for the position."

CANCER RESEARCH.

THE investigation of the problems of cancer proceeds apace, and every year is adding to our knowledge of the facts connected with the disease. It is true that we have not yet answered the two chief questions, its cause and its cure, but our knowledge is increasing, and we have little doubt that before long it will receive still more important additions. In the last issue of THE LANCET was printed the ninth annual report of the Imperial Cancer Research Fund, and from that it will be seen that material additions have been made to our knowledge of the subject. The Fund is peculiarly happy in having the coöperation of the Registrar-General in obtaining statistics of the incidence of cancer, for societies for the investigation of cancer in other countries have so far depended for their statistics on figures collected by the voluntary assistance of the medical profession, and this leads to much unnecessary work. One important point that statistics have brought out is that the increase of cancer during the last decade is referable to certain anatomical regions and not to others; thus in males the increase is almost confined to the alimentary canal, while in females it mainly affects the same system, although the breast also suffers. Much has been done to investigate the relation between the tumour and the animal in which it appears, and it seems to be shown that it is not any special peculiarity of soil which favours the growth of a cancer, for transplantable tumours grow as well in normal animals as in those in which they first appeared; yet a spontaneous tumour can hardly ever be implanted into an animal in which there has arisen a spontaneous tumour. As to treatment, experiments have proved that it is to some extent possible to modify the growth of propagated cancer in animals, but it has not yet been found possible to arrest the growth of spontaneously arising tumours, and it is at least doubtful whether any real progress is to be made along these lines. Thus, this report, though not as yet affording us any clear indication of a method of preventing or destroying cancer, has distinctly advanced our knowledge, while it stimulates our hope of more direct results. In the present number of THE LANCET appears a paper by Mr. C. J. Bond of Leicester on the theory of cancer. He discusses fully the mode in which a cancer arises, and he adduces evidence which appears to him to support the conclusion that the complex cell changes which we associate with cancer have been built up by variational changes from the normal type, and that one of the stages passed through is represented by the various forms of benign growth. The formation of a tumour he regards as an adaptive response on the part of individual cells or cell-groups to

environmental change of three kinds—either a change in the stimuli which reach the cell from the outside world, or a change in nutrition, or in the activities in the other cells which compose the organism. The striking condition of the skin of the chest wall which is known by the name of "cancer en cuirasse," and which follows carcinoma of the breast, has always received much attention since it was described and named by Velpeau in 1838, though indeed it had been noticed by Howard in 1792. This condition has long been considered to be due to a malignant infiltration of the lymphatics of the skin; but lately this view has been challenged by Mr. W. Sampson Handley, who has done so much to advance our views of the mode of spread of malignant disease. Mr. Handley considers it to be an œdematous infiltration of the tissues due to lymphatic blocking. Sir George T. Beatson has submitted to careful histological examination the skin of a patient who was afflicted with this form of malignant disease, and has described the case very fully in another column. He is convinced by what he found that the ordinary view is correct and that the condition is certainly due to the spread of the malignant growth along the superficial lymphatics. It is possible that both views are correct and that the "cancer en cuirasse" has a different pathology in different cases, but it is certainly a matter that should be settled, for though the disease is not common it cannot be described as very rare. The problems of cancer are of vast importance, and though we are not in view of the end there can be no doubt that we are making progress. The difficulty lies in the complexity of the matter. A letter from Mr. Harry Lyle and a brief record of a case of recurrent melanotic sarcoma by Dr. Charles H. Lilley indicate other lines of observation to be followed. Mr. Lyle considers that the part played by simple inflammation on the prevalence of malignant disease is not sufficiently recognised, while Dr. Lilley's clinical note warns us of the long interval over which recurrency may take place. In every direction—clinical, biological, and statistical—there is great work to be done, and there is certainly a prospect ahead that the research of those who do it will receive better attention.

SUMMER CLOTHING FOR MEN.

DURING the long spell of magnificent weather that has been such a notable feature of this Coronation year the question of how to dress comfortably must often have perplexed the professional man confined to city life, and therefore to some extent forced to observe the conventions. Of late years there has certainly been a far less rigid adherence to these conventions than, say, 20 or 30 years ago; but the legal and medical professions, at any rate, have been on the whole conservative in this respect. With regard to headgear, the ordinary silk hat of the town dweller has long been criticised; but it must be admitted that in spite of many attempts to displace it in popular favour it remains the *sine quâ non* for certain society functions, though not now so indispensable for many others where a short time ago it was quite compulsory. We do not understand why the white tall hat has fallen out of use; it was lighter to wear, cooler to look at, and, so long as there was no black band to suggest that the wearer was in mourning for the last remnants of his respectability, its appearance was cheerful. Straw hats, that now form so large a proportion of the summer headgear of our town population, are certainly cool and light; the soft panama variety looks more comfortable, but not only is it much more expensive, but from a medical point of view it has a drawback. Whatever type of hat is worn the lining should be soft and elastic, so that there is no constriction anywhere round the brow; yet the panama offers so large a surface of attack for sudden wind that it must be tight to the forehead. The air-space above the head should be ventilated. Air itself is a bad conductor of heat, and if a deep layer of air is interposed between the head and the head covering, this forms the best protection against the effects of sun, provided, of course, that the air layer is kept cool by free ventilation. Although the tall hat to some extent retains its vogue, the double-breasted frock-coat has almost disappeared for daily use; but we still seem to cling to funereal black as the appropriate hue for city life. Our climate is so variable that we cannot always assume that a fine warm morning will be followed by a hot day; therefore we cannot always at the beginning of the day dress appropriately for the ensuing eight hours or so. Woollen stuff for material, and a loose fit, will secure comfort, and protection from extremes both of heat and cold. Light coloured garments are naturally cooler than dark ones, as they reflect instead of absorb the sun's rays; but a permeable texture is of much more importance than colour; it is necessary for health and comfort that free passage should be allowed for evaporation from the skin, inasmuch as this is the most effective physiological means of cooling the body. Dwellers in tropical countries generally wear white cotton clothing, very light in texture, being careful, however, to protect the head from the sun's direct rays by some form of turban, and the abdomen from chill by several folds of material, forming a cummerbund. With our variable climate we must be cautious, even in the hottest weather, how far we imitate the habits of people whose weather is so settled one way or another as to afford no topic of conversation. The male garments of the present day, save where a ceremonial occasion or a professional convention alters the circumstances, are loose in texture, not tightly fitting, and not necessarily dark in colour. They are hygienically reasonable and practically well adapted for the requirements of ordinary life, and we rejoice in the emancipation from actual discomfort that is implied in them for many of our readers. On the whole, it seems to us that the general tendency of modern fashions in masculine dress is towards reasonableness and comfort; while with regard to women, the increase in active exercise on their part that is now almost universal, and the spread of liberal views in education, have wrought a great change in all ranks of society.

THE OXFORD OPHTHALMOLOGICAL CONGRESS 1911

THE Oxford Ophthalmological Congress, which assembled at Keble College, Oxford, on July 13th last, was well attended, especially by members from the other side of the Atlantic. The business session was opened by an address of welcome by the Master of the Congress, Mr. Robert W. Doyne, reader in ophthalmology in the University of Oxford. He was followed by Professor Arthur Thomson, who dealt with the anatomy and physiology of the parts about the so-called "filtration angle" of the eye. His remarks were illustrated by a series of beautiful lantern slides. Dr. Lieven of Aachen then spoke on salvarsan, and he was followed by Major R. H. Elliot, I.M.S., of the Government Ophthalmic Hospital at Madras, who described lucidly his operation for trephining the sclera in cases of glaucoma. He has performed the operation on 403 eyes, and he analysed the results in 66 of the patients who had returned for observation. Major Elliot's very practical communication was well received by a crowded audience. The afternoon was devoted to the witnessing of operations performed by Mr. Charles Higgens of London and Dr. S. Lewis Ziegler of Philadelphia. The opportunity was also taken of inspecting a number of interesting eye cases assembled by the staff of the Oxford Eye Hospital. On the following day addresses dealing with subjects of interest

to ophthalmic surgeons were delivered by Professor Francis Gotch, Dr. StClair Thomson, and Dr. Francis Low. In the department of physiology, microscopical specimens, new instruments, ophthalmoscopic drawings, novel operations, and so forth were shown or demonstrated by Mr. H. Herbert, Major G. H. Fink, Dr. F. W. Edridge-Green, Dr. Wiston Baker, Dr. Thomson Henderson, Mr. R. Granville Waddy, Dr. Wendell Reber, Mr. P. E. H. Adams, Mr. R. J. Coulter, Mr. A. Bernard Cridland, Dr. T. Harrison Butler, Dr. Alexander G. Gibson, Mr. H. G. Armstrong, Dr. R. M. Truter, Mr. R. W. Doyne, Mr. Sydney Stephenson, and others. In addition to all this, many firms of repute showed the latest optical and surgical appliances. The social side of the Congress (always a feature at these meetings) was represented by the official dinner held in Keble Hall on July 13th, the chair being taken by Sir William Osler. The chief guests included the Vice-Chancellor of the University of Oxford and Dr. W. Lock, the warden of Keble College. Other affairs included a garden party at Balliol College, a visit to the Clarendon Press, and a smoking concert at Keble College.

THE SEA AND ITS VOTARIES.

DERIVED perhaps from their insular instincts there is a conviction in the minds of probably most British people that in matters regarding the recuperation of health there is nothing like the sea. "A blow from the briny" is a very common recommendation in slackness, and is meant to suggest that sea air is salutary. In not a few cases that is a delusion. It is true that as a rule there is nothing to be said against the quality of sea air; it is cool, pure, and clean, its supply is unlimited and ever fresh, and yet there may be found by medical men a reason for warning their patients about the drawbacks of the environment. The amusements offered at the seaside may be so varied compared with those of a quiet country life that the temptations of fishing, bathing, sailing, and water sports in general are difficult to resist, even although it is the visitor's common experience time after time that the sea does not exactly suit his general health. "I love the sea, but the sea somehow does not suit me," are the words with which such an individual sums up his case. It is a mischievous idea in the layman's mind that the remedy for all weak states of health is necessarily sea air. It is not always that the individual seeking strength can respond to the powerful and exciting stimulus of the bracing sea air; the digestive, secretory, circulatory, and eliminatory systems may be goaded to an energy of which they are incapable, by reason of a general debilitated condition; they are not able to do their work without exhaustion, and the last state of that man may be worse than the first. When sea air disagrees with the temperament digestive disturbances arise, and if the excretory functions are not in good going order, as in the case of the so-called bilious individuals and plethoric persons, headaches, giddiness, and a train of symptoms commonly summed up as "biliousness" makes an appearance. As a rule, the effect upon such cases of the less stimulating country air is magical. When that is so, it means that the great human machine and its complexes gain vigour best by repose. When strength has been restored in this way the medicine may be changed and the tonic air of the sea be prescribed with the greatest advantage. The matter is of some moment to the man who finds that a seaside holiday is a strain upon his means, for if sea air does not suit his particular needs he is not only throwing his hard-earned money away but receiving, it is possible, a set-back to his health. He may, however, justify his adherence to the seaside on the ground that it does his wife and children good—and he will be admired for that view—but in such a case the indications for him, at all events, are first the country or even a stay at home, and then the sea or mountain air. There can be no more satisfactory formula for the restoration of the hard-worked person than first a soothing, restful environment and then a tonic one. To plunge straight into the tonic, invigorating air of the seaside is an irrational procedure for many "run-down" cases. A stimulus given when there can be no response is a debit on what strength is left. It is no axiom, therefore, that the sea spells health.

RUPTURE OF THE SUPRASPINATUS TENDON.

IN the *Boston Medical and Surgical Journal* Dr. E. A. Codman has reported two cases of a very rare injury—complete rupture of the tendon of the supraspinatus. A healthy woman, aged 52 years, was referred to him by her medical attendant on March 7th, 1909. On Oct. 3rd, 1908, while hanging clothes on a line, she endeavoured to toss over a heavy blanket and felt something snap in her shoulder. She felt an intense pain and the arm fell and hung by her side. Her medical attendant found no thickening or ecchymosis and radiography was negative. Since then she had been unable to abduct the arm and suffered pain, especially at night. The symptoms generally were such as Dr. Codman has described in subacromial bursitis, but the following points were different. There was little atrophy of the deltoid, and it even appeared to be hypertrophied in consequence of apparent swelling of the joint beneath. Under the fibres of the deltoid, beneath the acromion, and over the joint, there was distinct deep fluctuation as if the whole bursa was full of fluid. Though the patient could not start abduction, when the arm was passively abducted to about 140° she could by a strong contraction of the deltoid for an instant prevent the arm from falling, but the slightest downward pressure caused it to drop to the side. External rotation was about one-half of normal. An incision was made between the fibres of the deltoid, and the roof of the bursa was found thickened with granulation-like bodies. On opening the bursa about half an ounce of straw-coloured fluid escaped. The floor was found to communicate with the joint, because practically the whole supraspinatus was torn from its insertion and retracted inwards. By holding the bursa wide open, pulling down the arm, and raising the elbow from the table the retracted end of the supraspinatus could be seen. This was caught with a tenaculum and pulled down enough to suture it with four heavy silk threads to the portion attached to the tuberosity. After the operation the arm ached at times, but she gradually recovered complete use of it. In March, 1911, function was perfect, and the only sign was that the deltoid was unusually prominent in consequence of fluid in the bursa. In the second case, an ostler, aged 40 years, who had always been strong, was seen on Dec. 21st, 1910. About three and a half months previously, whilst tightening the girth of a horse, he felt something give way in his shoulder and fell. He immediately lost power in his arm, but managed to complete saddling without raising it. His medical attendant thought he felt slight crepitus, but a skiagraph was negative. On examination it was first thought that he was suffering from the adherent type of subacromial bursitis, but the same conditions were found as in the previous case, and also there was a distinct depression just above the tuberosity of the humerus. Rupture of the tendon of the supraspinatus was diagnosed. On operation straw-coloured fluid escaped from the bursa, which communicated with the joint. The supraspinatus had retracted so far that it could not be seen, and with some difficulty the tendon was caught with a tenaculum and pulled forward. It was sutured to the tuberosity with

heavy silk prepared with paraffin. Abduction was not allowed for three weeks, and then the patient began to use the arm. On March 25th, 1911, he could easily place his hand on the top of his head, but full abduction was still weak. The function of the supraspinatus was as good as in the previous case at the same period after operation. In only one other case has Dr. Codman diagnosed complete rupture of the supraspinatus. The patient, a powerful man, who declined operation, four years after the injury was unable to start abduction. Partial rupture of the tendon of the supraspinatus Dr. Codman regards as common. He has no difficulty in finding it in the dissecting room. It is usually not more than half or a quarter of an inch in breadth, and does not interfere much with the function of the arm. Such ruptures are best considered with the subacromial bursitis, which they cause. They are beneath the serous base of the bursa, which may or may not be torn through. If straw-coloured joint fluid is found on opening the bursa careful search will usually demonstrate a small opening into the joint at the point of rupture. Usually suture is unnecessary, and healing takes place if the inflamed portion of bursa over the rupture is clipped away with scissors.

SUMMER HEALTH PROPAGANDA IN AMERICA.

THE Chicago Department of Health is essentially an educational department. It teaches what is too often neglected in schools, and, what is equally necessary, it attempts to teach those who are too old to go to school. Every week the department issues and sends free of charge to "those who should be benefited by it" a small bulletin popularly written to disseminate the advice and information the sanitary authorities have to give. At the present time this consists of practical suggestions for coping with the heat, and, above all, for preventing the diseases that are so fatal among infants and children during the summer months. Then a big poster has been placarded with illustrations showing the typhoid dangers of summer resorts. In one corner the railway platform and departing train is depicted. Then comes the country road with manure carts and motor-cars, and the dirty farmyard where children are drinking from a pump close to the manure heap. Further on there is a river with a water intake and people bathing close to a sewer outfall. While yet further under the shade of trees a picnic party is enjoying a meal in the open air, but flies are coming over the food straight from a privy that is close at hand. Finally, what is called Summertown Hotel derives its water-supply from a well dug at a lower level than the graves of the cemetery that is close by. In August and September there is generally an increase of typhoid fever at Chicago. This coincides with the return from such summer resorts of many inhabitants. They are therefore warned not to go where there are shallow wells near barn-yards or where the water-supply comes from a river that receives sewage. When there is reason to suspect the water it should be boiled and a sample sent to Chicago for analysis. Automobile parties should carry their own water-supply with them. There are special bottles and other contrivances that will keep the water cool. Milk should be pasteurised and the farms whence it comes visited, and not patronised if they are not clean. Any place swarming with flies must be avoided; flies are clear evidence that there is filth in the neighbourhood. "Clean, safe food cannot be served in a dining-room in which there are swarms of flies." Chicago, with its good water-supply and the care taken in watching over the milk-supply, is much safer than summer resorts that have sanitary defects. But there are some summer resorts where the drinking water is pure, the bathing water clean, the scavenging so well done that there are hardly any flies. These places should be encouraged by extensive patronage. The newest development in Chicago teaching is the efforts made to make the public understand the danger of house-flies. "Filth *plus* flies and fingers equals fever" is a new sort of arithmetic now taught. Newspaper wrappers are printed bearing the picture of a fly and the inscription "Kill that fly," when the Americanism "swat" is not used. Then we have maxims such as "Don't forget that one fly swatted now will save a million swats two months hence." Or else the authorities resort to such rhyme as—

> "This is our summer battle-cry,
> Muzzle the dog; swat the fly,"

followed by the warning, "Where flies multiply there the babies die." This is all good work, particularly as the householder is told how to avoid the flies denounced as so dangerous. A little common kerosene mixed with crude carbolic acid, 1 per cent. of acid, or 1 ounce of acid to a quart of kerosene sprayed upon garbage will prevent flies coming and kill eggs and larvæ. Manure that cannot be covered over should be treated with one pound of sulphate of iron in a gallon of water. It does not affect the value of the manure, but kills the maggots. Still, the best of all precautions is the prompt removal of garbage or manure.

THE library and offices of the Royal Society of Medicine are closed until Sept. 1st.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—An ordinary meeting of the Council was held on July 27th, Sir Henry Butlin, the President, being in the chair. It was resolved to grant Diplomas of Membership to 95 successful candidates, and it was also resolved to grant, in conjunction with the Royal College of Physicians of London, Diplomas in Public Health to 20 successful candidates. Newnham College was added to the list of institutions recognised by the Examining Board in England for instruction in chemistry, biology, and physics. A letter to the President from Dr. Edmund Hobhouse was read, asking the President, on behalf of the medical and surgical staff of the Sussex County Hospital, to accept for the College a complete skeleton of mollities ossium and such other specimens as should be considered desirable. The best thanks of the Council were voted to the staff of the Sussex County Hospital for their gifts.

THE "ENSEIGNEMENT MEDICO-MUTUEL INTERNATIONAL."—The session of this body, generally known as the "E.M.I.," will be held in Scandinavia from August 12th to 30th, and, thanks to the efforts of Professors Ehlers (Copenhagen), Johannessen (Christiania), and Wanrinski (Stockholm), promises an interesting programme. The following visits have been arranged:—At Copenhagen: Rigs Hospital, the Modern Hospital of Mont l'Evêque (1300 beds), the Finsen Institute, the Institute of Serotherapy, the communal establishments of hygiene, schools, sewerage plants, the modern municipal dairy (to be visited at 2 P.M., when in active work), a Danish gymnastic course for women, and a conference on medical education in Denmark. At Christiania: the State Hospital, the Modern Communal Hospital, the Dikemark Insane Asylum, the municipal school, the city sanitary institutions, and the climatic sanatoriums. At Stockholm: the special hospital for contagious diseases, the Swedish Hospital for the Care of Children, the primary school, the new abattoir, the Bureau of Hygiene, the public baths, the water-supply, and the new sanatorium for tuberculosis. Other interesting topics for study in applied hygiene will be the schools for the crippled, physicotherapy, alcoholism, and leprosy at Bergen; the working of the refuse incinerator and the Hospital for Tropical Diseases at Hamburg; the Institute and the Museum of Hygiene at Berlin. Finally, a visit will be paid at the close of the session to the International Exhibition of Hygiene at Dresden. For further information application should be made, enclosing an international postage coupon, to the headquarters of the "E.M.I.," 12, Rue François Millet, Paris, XVI^{e}.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on July 27th, Sir THOMAS BARLOW, Bart., K.C.V.O., being in the chair.

The following gentlemen having passed the required examinations were admitted Members of the College: Hildred Bertram Carlyll, M.D. Cantab., L.R.C.P., Ivor Jones Davies, M.B. Lond., Filippo Melandri, M.D. Bologna, John Parkinson, M.D. Lond., L.R.C.P., Edward Palmer Poulton, M.B. Oxon., Frederick George Thomson, M.D. Lond., L.R.C.P., and Arthur Gurney Yates, M.D. Edin.

Licences to practise physic were granted to 97 gentlemen who had passed the necessary examinations.

In conjunction with the Royal College of Surgeons of England Diplomas in Public Health were granted to the following candidates:—David Main Baillie, Samuel Lindsay Brohier, John Phillip Henry Davies, Reginald Inglis Douglas, William Henry Wilson Elliot, Lieutenant-Colonel, I.M.S., D.S.O., William Charles Dillon Hills, James Bonnell Howell, John Johnstone Jervis, Robert Henry Hatten Jolly, Thomas McCririck, John McKenzie, Captain, R.A.M.C., Bernard Moiser, Henry Pratt Newsholme, Jitendra Nath Rai, Bikrama Jit Sahni, Percy Herbert Stirk, William Reginald Margetts Turtle, Ernest Alfred Freear Wilkes, Charles Frederic Wood, and William Allan Young.

On the nomination of the President, the Council, and the Library Committee the following elections were made:—Censors: Dr. John Mitchell Bruce, Dr. David Bridge Lees, Dr. Samuel Hatch West, and Dr. Percy Kidd. Treasurer: Sir Dyce Duckworth, Bart. Emeritus registrar: Dr. Edward Liveing. Registrar: Dr. Joseph Arderne Ormerod. Harveian librarian: Dr. Norman Moore. Elected members of the library committee: Sir William Allchin, Dr. Humphry Davy Rolleston, Dr. Arthur Francis Voelcker, and Dr. Raymond H. P. Crawfurd. Curators of the museum: Sir William Henry Allchin, Dr. Seymour John Sharkey, Dr. Frederick William Andrewes, and Dr. William Hunter. Finance committee: Dr. Howard Henry Tooth, C.M.G., Dr. George Newton Pitt, and Dr. Hector William Gavin Mackenzie. Examiners: Chemistry—Mr. William Holdsworth Hurtley and Mr. Hugh C. H. Candy. Physics—Mr. Alfred Henry Fison and Mr. Herbert Stanley Allen. Practical pharmacy—Dr. Arthur Philip Beddard, Dr. Edmund Ivens Spriggs, Dr. William James Fenton, Dr. Alfred Ernest Russell, and Dr. Arthur Robertson Cushny. Physiology—Dr. Marcus Seymour Pembrey and Mr. Francis Gotch. Anatomy—Dr. Christopher Addison. Medical anatomy and principles and practice of medicine—Dr. Wilmot Parker Herringham, Dr. Richard Grainger Hebb, Dr. Lauriston Elgie Shaw, Dr. Judson Sykes Bury, Sir Hugh Reeve Beevor, Dr. James Galloway, Dr. Arthur Francis Voelcker, Dr. Wilfred James Hadley, Dr. Cyril Ogle, and Dr. Wilfred John Harris. Midwifery and diseases peculiar to women—Dr. Charles Montague Handfield-Jones, Dr. Arthur Hamilton Nicholson Lewers, Dr. Arthur Francis Stabb, Dr. George H. A. Comyns Berkeley, and Dr. John Shields Fairbairn. Public health: Dr. Henry Richard Kenwood (Part I.) and Dr. Louis C. Parkes (Part II.). Tropical medicine: Dr. Frederick William Andrewes (bacteriology) and Dr. William John Ritchie Simpson, C.M.G. (diseases and hygiene of the tropics). Murchison scholarship: Dr. Sidney Philip Phillips and Dr. Hector William Gavin Mackenzie.

The following communications were received from: 1. The clerk of the Privy Council, enclosing copies of the programme of the Third International Congress for the Study and Prevention of Infantile Mortality to be held at Berlin, Sept. 11th–15th next. 2. The Brighton and Sussex Medico-Chirurgical Society, concerning the extent of practice by unqualified persons, and the dangers arising therefrom. 3. The Imperial Merchant Service Guild, concerning tests for colour vision. 4. The registrar of the General Medical Council, enclosing a report from the Public Health Committee of the Council, concerning changes in the regulations for the Diploma in Public Health. (This matter was referred to the Committee of Management). 5. The secretary of the Royal College of Surgeons reporting proceedings of the Council of that College upon June 8th and July 13th last.

Dr. StClair Thomson was appointed a delegate of the College to the International Laryngo-Rhinological Congress to be held at Berlin, August 30th to Sept. 2nd of this year. On the nomination of the Council, Dr. S. J. Sharkey was appointed a representative of the College in the Senate of the University of London, Sir William H. Allchin having resigned.

Sir William S. Church, Bart., K.C.B., was, on the recommendation of the Executive Committee of the Imperial Cancer Research Fund, re-elected a member of that committee.

Dr. Arthur Newsholme was re-elected a member of the Executive Committee of the Imperial Cancer Research Fund.

The PRESIDENT announced that the Council had recommended that the Baly medal for distinction in the science of physiology should be awarded to Dr. William Dobinson Halliburton. He also announced that the Bissett Hawkins medal in hygiene had been awarded to Dr. Clement Dukes for his work on the Hygiene of Public Schools.

A report was received and adopted from the committee appointed to consider a paper, entitled "Suggestions to Medical Practitioners respecting Certificates of Causes of Death," submitted by the Registrar-General.

A report was received and adopted from the committee appointed to consider a letter from the Medico-Psychological Association of Great Britain and Ireland in which was suggested the institution of a Diploma in Psychological Medicine. The report was as follows:—

The committee appointed by the Comitia on March 2nd, 1910, to consider the request of the President of the Medico-Psychological Association that the College should institute a special Diploma in Psychological Medicine, reports as follows:—

That whilst it is inexpedient to establish a special diploma in one branch of medicine, it is desirable that medical practitioners practising in insanity should be encouraged to obtain a high standard of knowledge and efficiency in their profession.

The committee therefore recommends that Members of the College who desire to do so, should be permitted to present themselves for a further examination in Psychological Medicine, and, if they satisfy the examiners, have their success recorded on the letters testimonial of their Membership.

To this end the committee recommends the enactment of the following regulations:—

PROPOSED REGULATIONS.

1. Any Member of the College may ask permission to present himself for further examination in Psychological Medicine.

2. The further examination in Psychological Medicine shall be held on such dates as the Censors' Board may from time to time determine.

3. Candidates shall be examined in:—(1) Psychology, and the Study of Conduct in relation to Mental Disorder; and (2) Psychological Medicine, and the Jurisprudence of Insanity.

4. Candidates shall be examined by written questions on each of the subjects mentioned above; the practical knowledge of the candidates shall be tested in an Institution for the Insane, and the candidates shall be examined *vivâ voce* in all the subjects of the examination.

5. On the letters testimonial of every Member who satisfies the examiners in Psychological Medicine a statement to that effect shall be engrossed, and signed by the examiners, accompanied by a certificate by the registrar.

Form to be engrossed on the Letters Testimonial.

A.B. die mensis A.D.
in Medicinâ Psychologicâ examinatus satisfecit nobis Examinatoribus.
Ita testamur { A.B. / C.D. } Examinatores.

6. Every Member who satisfies the examiner will be permitted to add to any mention or description of his Membership words purporting that he obtained distinction in Psychological Medicine.

The annual report of the Imperial Cancer Research Fund was received.

The report dated June 27th from the Committee of Management was received and adopted. The report recommended:—

1. That the Darlington Technical College be added to the list of institutions recognised by the Examining Board in England for instruction in Chemistry and Physics.

2. That the Portsmouth Fever Hospital, Milton, be added to the list of fever hospitals recognised by the board for instruction in infectious diseases.

3. That Washington University, Washington, U.S.A., be placed on the list of universities whose graduates in medicine are admissible to the final examination of the board under the conditions of paragraph IV., Section III. of the Regulations.

4. That until further notice an additional examination in Part I. for the Diploma in Public Health be held in the month of April in each year.

Another report, dated July 11th, from the Committee of Management was received and adopted. The report recommended:—

1. That the following institution, which has been visited by a member of the committee and reported as fulfilling the requirements of the board, be added to the list of institutions recognised by the Examining Board in England for instruction in Chemistry, Biology, and Physiology: Newnham College.

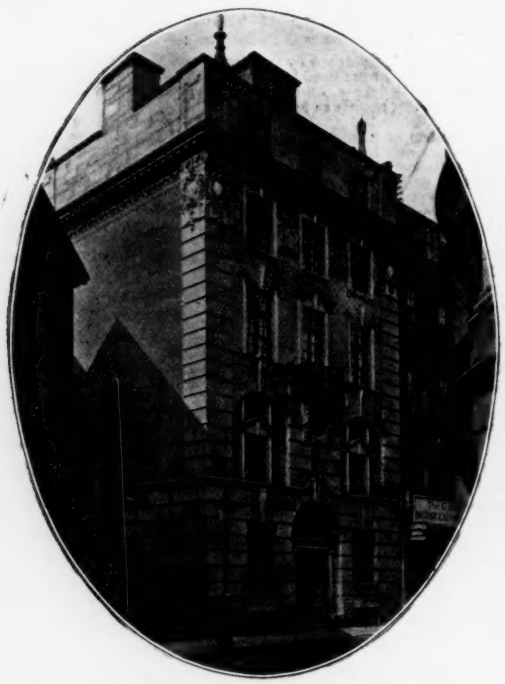
2. That Dr. Norman Moore be appointed the Visitor to the examinations of the Egyptian Medical School for the examinations to be held in December next.

After some further formal business the PRESIDENT dissolved the Comitia.

THE RADIUM INSTITUTE.

THE Radium Institute, which was founded, at the suggestion of King Edward two years ago, by Sir Ernest Cassel and Viscount Iveagh, is to be formally opened on August 14th. This institution is devoted to the work of scientific research and to the skilled application of radium in the treatment of disease. On March 23rd the institute was inspected by His Majesty King George, who was accompanied by the Queen, and on July 10th it was again honoured with a visit by their Majesties Queen Alexandra and the Empress Marie Feódorovna of Russia. On the occasion of these visits demonstrations were given by the medical superintendent, Mr. A. E. Hayward Pinch, and by Mr. W. Lester Alton, director of the chemico-physical laboratories. Quite recently Madame Curie has isolated radium, and describes it as a white metal oxidising

FIG. 1.



The façade of the Radium Institute.

in water, burning paper, turning black on exposure to air, and having the property of adhering firmly to iron. It is, however, with the compounds of radium that treatment is carried out, and we find on inquiry that the Radium Institute in London has stored in its building a larger supply of radium than is possessed by any other institution in the world; and so priceless is the commodity from a commercial point of view that we hesitate to estimate in terms of pounds, shillings, and pence the value of the precious element at 16, Riding House-street.

The Radium Institute and the Medical Profession.

A letter dated May 6th, 1911, from Sir Frederick Treves, chairman of committee, addressed to the medical superintendent, so exactly indicates the line of professional conduct to be followed in work at the institute that we freely paraphrase it. The letter stated in the first place that it was desirable that the medical superintendent should limit as far as possible his responsibilities in connexion with the patients who attended at the institute to indication of the specific treatment to be employed in each case, as well as the details of that treatment; to ensuring that the treatment was carried out; and to declining to treat any unsuitable case. The diagnosis of the malady from which the patient is suffering will rest with the practitioner introducing the patient, and should the medical superintendent not agree with the diagnosis submitted he will discuss the matter with the practitioner; and should a third opinion be considered necessary, will call in, when the patient is a gratuitous one, a member of the honorary consulting staff. When difficulty as to diagnosis arises in the case of a paying patient, and a third opinion is needed, the practitioner will name the consultant unless he wishes to leave the nomination to the medical superintendent. But the patient must pay the fee of the consultant, no matter whether the consultation is held at the institute or at the consultant's house. In no case will the medical superintendent, acting on behalf of the institute, accept a fee for taking part in any consultation, and the honorary consulting staff, as a staff, are concerned only with the gratuitous patients treated at the institute, and no fee of any kind will be charged to such patients for any treatment carried out in the institute. For all special treatment requiring, for example, a gynæcologist, the paying patient must pay such fees as are usually paid for like services. The medical superintendent's responsibility for the care of patients does not, of course, extend outside the institute.

Sir Frederick Treves's full letter is so simple and clear a document that it might well be framed and hung in the corridors of the institute, if only to convince everyone that the institute cannot be made use of to put fees into the pockets of any specially selected members of the medical profession.

Regulations for Patients.

The following regulations for the admission of patients have been drawn up:—

Patients will only be treated at the Radium Institute in association with, and through the introduction of their medical adviser. At their first visit they must either be accompanied by their medical adviser or must bring with them his written statement of the case giving details of the treatment already employed. New patients will be seen on Tuesdays and Thursdays between the hours of 10 A.M. and 4 P.M., but the exact day and hour of any consultation must be arranged previously (by letter) with the medical superintendent, to whom all communications should be addressed.

Medical practitioners are cordially invited to be present during the treatment of their patients, and to assist in the same whenever practicable.

The medical superintendent on receiving a first inquiry from an individual for treatment posts off the following letter in reply:—

DEAR .....,—In reply to your letter of inquiry respecting the Radium Institute, I beg to inform you that patients can only be treated in association with, and through the introduction of their medical adviser. I shall, therefore, be pleased to forward full particulars to your medical man if you will favour me with his name and address.—Yours truly,

A. E. HAYWARD PINCH, Medical Superintendent.

On receiving an answer giving the name of the medical practitioner the medical superintendent writes to that gentleman in the following terms:—

DEAR .....,—In compliance with the request of your patient, M....., I beg to forward you herewith particulars of the conditions under which patients are admitted to the Radium Institute for treatment, and the charges for the same.—Yours truly,

A. E. HAYWARD PINCH, Medical Superintendent.

The charges referred to are as follows:—

	£	s.	d.
For first consultation at the Radium Institute, the patient being accompanied by his or her medical adviser, or bringing from such medical adviser a written history of the case...	2	2	0
For treatment:			
1. When lesion is situated on external surface of body			
(*a*) With apparatus containing not more than 50 milligrammes of radium.			
Per sitting	2	2	0
(*b*) With apparatus containing more than 50 milligrammes of radium.			
Per sitting	4	4	0
2. When lesion is situated in cavity—e.g., larynx, uterus, urethra, &c.			
Per sitting	5	5	0

In regard to necessitous patients the following letter is sent to any such on application for free treatment:—

DEAR .....,—In reply to your letter of inquiry, I beg to inform you that necessitous patients are only admitted to free treatment at the Radium Institute if certified by their medical adviser to be suitable subjects for charity. If you will, therefore, be good enough to ask your medical man to fill up the enclosed certificate, and forward it to me, together with any notes with which he may furnish you, I will write fixing a day and hour for your attendance at the Radium Institute.—Yours faithfully,

A. E. HAYWARD PINCH, Medical Superintendent.

FIG. 2.

A consulting room, Radium Institute.

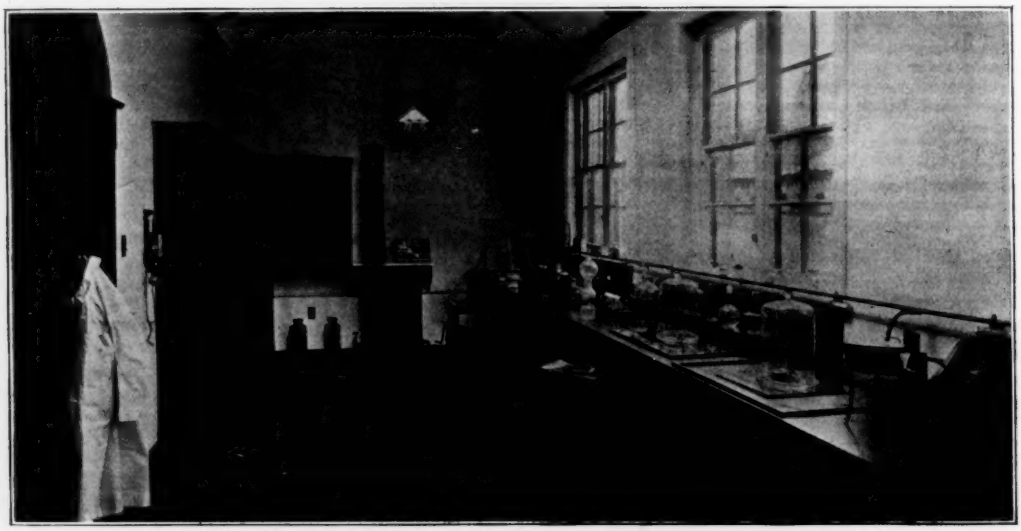
FIG. 3.

A cubicle for treatment, Radium Institute.

FIG. 4.

Pathological laboratory, Radium Institute.

FIG. 5.

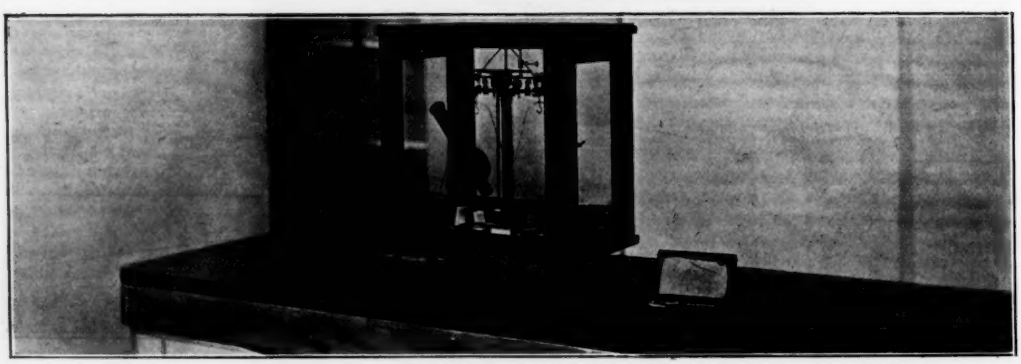


Chemico-physical laboratory, Radium Institute.

FIG. 6.

Engineer's shop, Radium Institute.

FIG. 7.



Alton's balance, Radium Institute.

The certificate referred to runs thus:—

I HEREBY CERTIFY THAT

M.....
residing at.....
is suffering from..... ; that ..... is in necessitous circumstances, and is to the best of my knowledge a fit and proper case for gratuitous treatment at the Radium Institute.
Name of Practitioner.....
Qualification.....
Address.....
Date.....

Medical practitioners are cordially invited to be present during the treatment of their patients, and to assist in the same whenever practicable.

Medical men desiring information concerning the activity of specimens of radium salts can have the necessary information supplied from the chemico-physical laboratory of the institute at the following scale of fees for the examination of radium salts and the examination or preparation of radium applicators.

	£	s.	d.
(*a*) Measuring the amount of radium contained in specimens of radium salts	2	2	0
(*b*) Measuring the amount of radium contained in various forms of radium applicators	2	2	0
(*c*) Analysis of the rays emitted from various forms of radium applicators	5	5	0
(*d*) Preparation of radium applicators. (To be made for medical men only.)			
1. Circular or square discs	2	2	0
2. Cylindrical and special designs	5	5	0
(*e*) Examinations of water, minerals, and the like, for radio-activity	2	2	0

Whilst reasonable care will be taken of all specimens and apparatus sent to the institute for examination, &c., it must be clearly understood that the examination of such specimens and apparatus is undertaken at the owner's risk, and that the institute cannot accept any liability with regard to the same.

Entering Riding House-street from Portland-place, the façade of the building of the institution presents itself as peculiarly suitable to the style of the architecture in its neighbourhood. Our illustration (Fig. 1) affords an excellent representation of the building.

On entering the institute we find on the ground floor the necessary accommodation provided for the reception of patients both well-to-do as well as necessitous, and for the diagnosis of the cases presented. The first floor is fitted up for the treatment of patients, the second floor is devoted to scientific research, and the third floor is reserved for the workshops and the tools required to make the institution quite independent of all outside help in the matter of apparatus of all kinds, scientific and otherwise.

The consulting-rooms, one of which is shown in Fig. 2, are five in number on the ground floor, two of them being for well-to-do patients, two for the poor, and one for gynæcological examination. The equipment throughout the building is of the most aseptic character, and this characteristic of the place is well seen in the out-patient waiting-room, where the walls are tiled, the corners rounded, and the floor made of teak.

A further indication of the modern equipment of the institution is noticed in the fact that one of Tilley's chairs specially constructed for Killian's intubation method is already installed.

The first floor of the building is given up to treatment of patients, there being cubicles for treatment for the poor and for the rich. Fig. 3 indicates better than a description in words the style of one of these cubicles.

On the second floor ample accommodation is supplied for scientific research. Fig. 4 shows the pathological laboratory, and anyone acquainted with modern research would notice at once the latest pattern Zeiss microscope fitted with the most reliable appliances for dark-ground illumination; an up-to-date Minot microtome will not escape observation, nor a Leitz microtome freezing apparatus. On the same floor Mr. Alton, the director of the chemico-physical work, has his laboratory, and Fig. 5 indicates very clearly the excellent arrangements provided for this important branch of scientific study. The photographic room deserves a word of praise, and indeed it must have been fitted up absolutely regardless of expense.

On the third floor is a neat and well-equipped engineer's shop (Fig. 6), in which all the apparatus required for the work of the institution is manufactured.

The basement contains a room specially fitted for Mr. Alton's balance. This balance (Fig. 7) rests on a slab supported by two pillars, and these pillars pass through the foundations to such a depth that absence of any vibration is assured. Close to this room is the commodious safe for the storing of the radium.

The Radium Institute has for its patron His Majesty the King, and its presidents are the Viscount Iveagh and Sir Ernest Cassel. The Executive Committee is composed of Sir Frederick Treves, the Hon. W. E. Guinness, Mr. Felix Cassel, the Hon. J. Strutt, Sir Lauder Brunton, Sir William Ramsay, Sir Malcolm Morris, and Sir Joseph John Thomson. The honorary consulting staff consists of Mr. W. H. Clayton-Greene, Dr. Herbert French, Mr. W. H. H. Jessop, Dr. J. H. Sequeira, Dr. W. H. H. Tate, Mr. Herbert Tilley, and Mr. J. W. Thomson Walker. The technical assistant is Mr. John F. Holding, and the architect is Mr. T. P. Figgis, F.R.I.B.A.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE annual meeting of this association was held on July 13th and 14th at the Royal College of Physicians, Dublin, under the presidency of Dr. JOHN MACPHERSON.

Regret was expressed at the resignation of the veteran editors of the Journal of the association, Dr. H. Rayner and Dr. A. R. Urquhart, and Mr. H F. HAYES NEWINGTON (the treasurer) expressed the high appreciation by the association of their prolonged and able services.

Mr. HAYES NEWINGTON moved the adoption of the report of the Committee on the Medical Inspection of School Children and paid a high tribute to the good work done at Darenth.

The installation of the new President, Dr. William R. Dawson, followed a vote of thanks to the out-going President, Dr. Macpherson. Dr. DAWSON presented, on behalf of the subscribers, a silver casket and an illuminated address to Dr. Edward Courtenay, on his retirement from the office of Inspector of Lunatic Asylums in Ireland.

Dr. DAWSON, in his presidential address, discussed the geographical distribution of insanity in Ireland and compared it with that of other conditions, such as density of population, pauperism, and poverty, emigration, the death-rate (both general and tuberculous), criminality, and alcoholism, and illustrated his remarks with statistical diagrams. These showed that insanity prevailed in the agricultural counties, chiefly of the south and east, Ulster and Connaught being relatively free, and that pauperism had a similar distribution. It bore some, but not a marked, relation in local incidence to that of the emigration rate, criminality, and chronic alcoholism, but none, apparently, to density of population, rateable value of land, proportion of aged persons, death-rate, or drunkenness. The amount of insanity ascribed to alcohol in Ireland was small. Secondarily, it was found that pauperism and poverty were not necessarily alike in distribution. The President was hopeful for the future.

Dr. WILLIAM GRAHAM (Belfast) read a paper on Psychotherapy in Mental Disorder, a subject which, though little discussed here, had attracted widespread attention in France, Germany, and America, where men of international reputation had applied the methods with, it was said, singular success. The classical methods of psychotherapy were: (*a*) suggestion, waking and hypnotic; (*b*) therapeutic conversation; (*c*) psycho-analysis; (*d*) occupation; and (*e*) re-education. (*a*) Suggestion as a therapeutic agent had been over-estimated; nevertheless, it was of value in certain types—e.g., alcoholism, sexual perversion, obsessions, phobias, multiple personality, and other forms of mental disturbance. (*b*) Therapeutic conversation (Dubois's method) consisted in explaining to the patient the origin and significance of his disorder so that the explanation became persuasion. This method was valuable in the less intractable types of disorder before the perverted idea had become too deeply rooted. But the patient was liable to get too dependent on the therapeutist, so that when removed from his influence a relapse was likely; and it was applicable only to a group of milder cases. (*c*) Psycho-analysis. This method (identified with the name of Freud) rested on the view that many disorders arose from the inability of the personality to assimilate certain experiences, such as those of a painful emotional character, and from the conflict thus set up between opposing groups of thought. The therapeutics consisted in making

clear to the patient the source of this conflict by bringing into the clear light of consciousness the submerged factor, and in thus re-establishing mental unity and integrity. This method had given best results in long-standing obsessions, psychasthenias, phobias, hysteria, and paranoid states. Freud's view over-emphasised the element of sexuality. The method was applicable to some types, but the tendency to confine psychotherapy to it must be rejected. (*d*) Occupation meant all methods that distracted the patient's attention from himself. Its main value lay in its power to train the attention. (*e*) Re-education, in Dr. Graham's opinion, was the crown of the whole psychotherapeutic movement. In some cases it implied suggestion and therapeutic conversation, in others psycho-analysis, in still others occupation; in all it sought to restore the normal psychic balance by teaching the patient how to regulate emotion, train the power of will, and direct properly his attention. In the primary stages of all mental developments, in the formation of character, in the beginning of pathological states, the value of this method could not be over-estimated.—The paper was discussed by Dr. MARY MACKENZIE, Dr. C. H. BOND, Mr. J. O'CONOR DONELAN, Dr. E. MAPOTHER, Dr. HELEN BOYLE, Dr. T. W. MCDOWALL, Dr. J. G. SOUTAR, and Mr. M. J. NOLAN.—Dr. GRAHAM replied.

Dr. M. A. COLLINS (Ewell Colony) read a paper entitled "Causes of Sudden Death in Epilepsy and some Points in the Treatment of Epilepsy." Dr. Marchand had said that, apart from accident, an epileptic fit never caused death; yet that authority had collected 15 cases of sudden death during a fit—two of them in his own experience. The epileptic colony at Epsom had been open seven years, and there 30,000 fits were recorded during the past year. Probably 200,000 fits had occurred since the establishment was opened; and 10 cases were recorded in which death occurred during, or almost immediately after, a fit. In 2 there was choking after food, and 1 death ensued from suffocation during a fit at night time. Of the 7 cases remaining, in 1 there was mitral and aortic disease together; in 2 there was adherent pericardium; in 3 advanced fatty disease of the heart, with evidence of chronic heart failure; and in the other cerebral tumour was found. He regarded the colony treatment as ideal, and it resulted in a great physical improvement of the patients. There would shortly be opened at Ewell a new hospital villa of the most recent type, to accommodate 50 acute patients. His results from changes in dietary had been somewhat contradictory, but he found fewer fits per night after a meat dinner than after fish. The results favoured a diminution of meat, but not its absence. The effect of bromides had been very variable. In two cases which were intolerant of bromide opium was proving useful. Digitalis in one who had a large number of fits brought about an 80 per cent. reduction in the fits.—The PRESIDENT said that when investigating the condition of the city of Dublin for the Royal Commission on the Feeble-minded he found that epilepsy was regarded as more of a family disgrace than was insanity. It was considered that knowledge of a fit on the part of the employer would lose the man his work. Expense was an important matter for a poor country like Ireland.—Dr. J. B. SPENCE, Dr. D. BOWER, Mr. HAYES NEWINGTON, Dr. J. F. DIXON, Mr. B. C. A. LEEPER, Dr. T. DRAPES, Mr. NOLAN, Dr. BOND, Dr. FLETCHER BEACH, Dr. G. W. GREENE, Mr. E. D. O'NEILL, and Mr. DONELAN discussed the paper, and Dr. COLLINS replied.

In the evening a banquet was held at the Royal College of Surgeons under the presidency of Dr. Dawson. There was a large company present, including his Excellency the Lord Lieutenant of Ireland, the Under Secretary for Ireland, the Presidents of the Colleges of Physicians and Surgeons, the Recorder of Dublin, the Bishops of Canea, Meath, and Clogher, as well as Dr. Macpherson, Mr. Hayes Newington, the Chairman of the Prisons Board, Mr. T. I. Considine (Inspector of Lunatic Asylums in Ireland), Dr. Drapes, and Dr. Percy Smith. The Lord Lieutenant, in reply to the toast of his health, proposed by Dr. MACPHERSON, referred in enthusiastic terms to the recent Royal visit to the city, and expressed his deep sympathy with the work carried on by those who laboured at the treatment of the insane. "The Medico-Psychological Association" was proposed by the Vice-Chancellor of the National University of Ireland in a speech in which he advocated the creation of a B.Sc. degree for a knowledge of mental diseases. Dr. DAWSON, in replying, spoke of the monotony of the work, and said that workers in the field needed all the encouragement they could get. "The Visitors" was proposed by Dr. DRAPES, and acknowledged by the Bishop of Canea and the President of the College of Surgeons. The Lord Lieutenant proposed a hearty vote of thanks to the President.

Other papers, read on the following day, were as follows: The Personal Equation in Alienism, by Dr. DRAPES (Enniscorthy); Note on Hereditary Insanity from a Practical Standpoint, by Mr. LEEPER; Certain Observations on the Morbid Histology of General Paralysis, by Professor SHAW BOLTON; Clinical Evidence *re* the Toxic Nature of Insanity, by Dr. COLIN F. F. MCDOWALL (Cheddleton) and Dr. W. T. SEWELL (Newcastle), was read by Dr. MCDOWALL; Mental Symptoms in Association with Choreiform Disorders, by Dr. MAPOTHER.

In the afternoon, by the kindness of the Fellows of the Royal Zoological Society, a garden party was held at the Society's gardens.

NATIONAL VETERINARY CONGRESS.

THE twenty-ninth annual meeting of the National Veterinary Association was held at Carnarvon on July 26th and 27th. Even if the attendance at the Congress was not large, all those present were extremely keen, and much useful information was presented and exchanged. Mr. T. SALUSBURY-PRICE presided, and in his address referred to the recent finding of the Tuberculosis Commission.

A paper on Veterinary Education in Relation to Public Health was read by Dr. O. CHARNOCK BRADLEY, who remarked that the recent rapid advance of veterinary science within the past 20 years is shown by the establishment of specialism within the ranks of the profession. Previously the training of the student, said Dr. Bradley, resolved itself into producing a general practitioner. Now the potential specialist has to be taken into account in the planning of the curriculum. All students upon obtaining a diploma will not become general practitioners; a proportion of them will enter the public services and will almost inevitably sooner or later have to concern themselves with questions of public health. Therefore the teaching of to-day differs markedly from that of 20 years ago. It would certainly not be sufficient to say that the duty of the veterinary officer of health ceases when he has succeeded in procuring a safe and efficient meat- and milk-supply, though this apparently in the minds of many sums up his function. In the matter of milk-supply a knowledge of the conditions under which the milk producer should be placed is necessary. This involves the consideration of suitable housing, feeding, water-supply, ventilation, and drainage. In other words, the officer must be conversant with the principles of building construction, the different nutritive values of foodstuffs and their effect upon the quantity and quality of milk yield, the possible adulterants and impurities of food and their effects, the source, storage, adequate amount, and distribution of water-supply, as well as the injurious effects of impurities of water, the necessary amount of air space and the methods by which excreta may be removed and disposed of, and the means in general by which the milk-yielding animals may be maintained in a state of health conducive to the production of sound milk. In his work relating to meat inspection the veterinary officer must use his knowledge of anatomy, of the peculiarities incident to breed, sex and age of the effects of foodstuffs, of the pathological changes met with in the organs and flesh of the domestic animals, and the possibility of their producing detriment to the health of the consumer. Without clinical veterinary knowledge the would-be supervisor of the milk- and meat-supply is at a great disadvantage. The medical officer of health and the veterinary officer work along the same lines up to a certain point, but the paths of the two soon diverge. The medical officer has to concern himself with the housing and feeding of man and the combating of diseases, many of which are peculiar to the human race. The veterinary officer has to regard similar features as they apply to animals. In particular he must be conversant with the clinical and pathological features of those diseases of animals which are transmissible to man.

Mr. J. W. BRITTLEBANK (Manchester), in discussing the

paper, said that it should not be assumed that the education of the veterinary student is inefficient, but a special training in the subjects laid down by Dr. Bradley would produce an ideal veterinary officer of health.

Mr. W. WOODS (Wigan) urged the profession to prepare men to fill the new appointments that are likely to be made. In order to carry out sound supervision of milk-supply it will be necessary to obtain a mixed sample of milk from the dairy, and if tubercle bacilli are present then it will be necessary for every cow to be tested. Large laboratories will have to be established all over the country, and medical and veterinary practitioners will be responsible for the efficient working of these establishments.

The following motion was proposed by Professor WOODRUFFE and carried:—

That the National Veterinary Association, in general meeting assembled, approves the action of the Council of the Royal College of Veterinary Surgeons in appointing a committee to consider the question of education in public health matters, and desires to urge upon the Council the need for prompt action in the interests of public health.

A paper on Sclerostomiasis in Equines, presented by Dr. H. E. ANNETT, provided an interesting subject for debate. Dr. Annett observed that amongst the horses and donkeys which were under his charge for treatment for the production of various therapeutic sera the ravages of this disease forcibly attracted his attention. The nearest allies of the sclerostomes are the parasites of the genus ankylostomum or uncinaria, and the study of the members of this genus in man more particularly, but also in the dog and other animals, has, as is now well known, given most remarkable and surprising results, but these are greatly surpassed by those which have arisen in the course of the more recent work on the sclerostomes. Dr. Annett carried out a series of experiments with the object of discovering if drugs could be conveyed to the seat of infection in a sufficient state of concentration to be effective. For this purpose he employed gelatine capsules coated with cellulose, but the experiments have not yet reached a stage at which any definite knowledge in this particular direction can be arrived at.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 7921 births and 4210 deaths were registered during the week ending July 29th. The revised estimate of the population of these towns in the middle of this year is 16,157,797 persons. The annual rate of mortality in these towns, calculated on this revised estimate, which had been equal to 12·0, 11·8, and 12·1 per 1000 in the three preceding weeks, further rose to 13·6 in the week under notice. During the first four weeks of the current quarter the annual death-rate in these towns averaged 12·4 per 1000, while in London during the same period the mean annual death-rate did not exceed 11·9 per 1000. The recorded annual death-rates in the 77 towns during last week ranged from 6·5 in West Hartlepool, 6·8 in Hornsey, 6·9 in Reading, and 7·0 in Stockton-on-Tees to 19 1 in Wolverhampton, 19·2 in Liverpool, 19·5 in Stoke-on-Trent, and 20·8 in Bootle. The 4210 deaths from all causes in the 77 towns last week exceeded by 459 the low number recorded in the previous week, and included 722 which were referred to the principal epidemic diseases, against numbers increasing from 268 to 423 in the four preceding weeks. Of these 722 deaths 533 resulted from infantile diarrhœa, 62 from measles, 56 from whooping-cough, 42 from diphtheria, 18 from scarlet fever, and 11 from enteric fever, but not one from small-pox. The mean annual death-rate from these epidemic diseases was equal to 2·3 per 1000, against 1·0 and 1·4 in the two preceding weeks. The deaths of infants under two years of age attributed to diarrhœal diseases in the 77 towns, which had increased from 70 to 236 in the four preceding weeks, further rose last week to 533, and caused the highest annual rates of 3·7 in Birmingham, in Bootle, and in Cardiff, 3·9 in Dewsbury, 4·4 in Birkenhead, 4·8 in St. Helens, and 5·8 in Wigan. The 62 fatal cases of measles were equal to the number recorded in the previous weeks, and included 21 in London and its suburban districts, 5 in Wolverhampton and in Liverpool, 4 in Bristol, 3 in Bolton, and 3 in Manchester. The deaths referred to whooping-cough, which had been 43 and 52 in the two preceding weeks, rose again last week to 56; 14 deaths were recorded in London and its suburban districts, 5 in Manchester and in Sunderland, and 4 in Hull and in Cardiff. The fatal cases of diphtheria, which had been 45 and 40 in the two preceding weeks, were 42 last week, of which 12 were registered in London and its suburban districts, 4 in Liverpool and in Blackburn, and 3 in Stoke-on-Trent and in Birmingham. The 18 deaths from scarlet fever were 4 fewer than the number in the preceding week, and included 4 in Liverpool, 2 in London, and 2 in Bradford. The 11 fatal cases of enteric fever were equal to the number returned in the previous week, and included 2 in Wigan. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily increased from 982 to 1358 in the 15 preceding weeks, had further increased to 1412 on Saturday last; 209 new cases of this disease were admitted to the hospitals during the week, against 191, 204, and 199 in the three previous weeks. These hospitals also contained at the end of last week 842 cases of diphtheria, 316 of measles, 271 of whooping-cough, and 48 of enteric fever, but not one of small-pox. The 1185 deaths from all causes in London last week showed an increase of 200 upon the low number returned in the previous week, and included 115 which were referred to diseases of the respiratory system, against 119 and 113 in the two previous weeks. The deaths attributed to different forms of violence in the 77 towns, which had been 194 and 188 in the two preceding weeks, declined to 173 last week, and 347 inquest cases were registered. The causes of 28, or 0·7 per cent., of the deaths registered in the 77 towns during the week under notice were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death during last week were duly certified in London and its eight suburban districts, in Bristol, Bradford, Newcastle-on-Tyne, Nottingham, Stoke-on-Trent, Salford, and in 46 other smaller towns; the 28 uncertified causes of death in the 77 towns last week included 6 in Birmingham, 4 in Liverpool, 3 in South Shields, 2 in Handsworth (Staffs.), and 2 in Sheffield.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns, having an estimated population of 1,710,291 persons in the middle of this year, 835 births and 488 deaths were registered during the week ending July 29th. The annual rate of mortality in these towns, which had been 14·9 and 13·9 per 1000 in the two preceding weeks, rose again last week to 14·9. During the first four weeks of the current quarter the annual death-rate in these Scotch towns averaged 14·6, and was 2·2 per 1000 above the mean rate during the same period in the large English towns. The annual death-rate during last week in the eight Scotch towns ranged from 9·9 and 11·7 in Aberdeen and Paisley to 16·2 in Leith and 22·2 in Greenock. The deaths from all causes in the eight towns last week showed an increase of 31 on the number in the previous week, and included 73 which were referred to the principal epidemic diseases, against 57 and 63 in the two previous weeks; of these deaths, 40 resulted from diarrhœa, 17 from whooping-cough, 6 from diphtheria, 4 from measles, 4 from scarlet fever, 1 from enteric fever, and 1 from small-pox. The mean annual death-rate from these epidemic diseases in the eight towns last week was equal to 2·2 per 1000, the mean rate last week from the same diseases in the 77 English towns having been 2·3. The deaths from diarrhœa, which had increased from 14 to 28 in the three preceding weeks, further rose last week to 40, and included 33 of infants under two years of age; 23 deaths occurred in Glasgow, 7 in Edinburgh, 4 in Greenock, and 3 in Leith. The fatal cases of whooping-cough, which had been 23 and 17 in the two previous weeks, were again 17 last week, of which 12 were recorded in Glasgow. The 6 deaths attributed to diphtheria were 3 in excess of the number in the previous week, and included 2 in Glasgow and 2 in Perth. The 4 fatal cases of measles showed a decline from the numbers in recent weeks and included 3 in Glasgow. The 4 deaths from scarlet fever were equal to the number returned in the

preceding week. The fatal case of enteric fever was registered in Glasgow, and that of small-pox in Dundee. The deaths referred to diseases of the respiratory system in the eight towns, which had been 47 and 51 in the two preceding weeks, were 48 in the week under notice, and were 13 below the number in the corresponding week of last year. Of the 488 deaths from all causes in the eight towns last week, 159, or 33 per cent., were recorded in public institutions, and 18 were attributed to different forms of violence. The causes of 18, or 3·7 per cent., of the deaths in the eight towns last week were not specified or not certified; in the 77 English towns the proportion of uncertified causes of death during the week did not exceed 0·7 per cent.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an estimated population of 1,149,495 persons in the middle of this year, 654 births and 362 deaths were registered during the week ending July 29th. The annual rate of mortality in these towns, which had been equal to 16·7 and 16·8 per 1000 in the two preceding weeks, declined to 16·4 in the week under notice. During the first four weeks of the current quarter the annual death-rate in these Irish towns averaged 16·0 per 1000; in the 77 English towns the mean annual death-rate during the same period did not exceed 12·4, while in the eight Scotch towns it equalled 14·6 per 1000. The annual death-rate during the week under notice in the 22 Irish towns was equal to 22·5 in Dublin (against 13·7 in London), 14·2 in Belfast, 16·3 in Cork, 11·5 in Londonderry, 13·6 in Limerick, and 15·2 in Waterford; in the 16 smallest of these Irish towns the mean annual death-rate last week did not exceed 9·5 per 1000. The 362 deaths from all causes in the 22 towns last week showed a decrease of 9 from the number in the preceding week, and included 87 which were referred to the principal epidemic diseases, against 35 and 53 in the two preceding weeks; these 87 deaths were equal to an annual rate of 3·9 per 1000, which was 1·5 above the mean rate from the same diseases in the 77 English towns. These 87 deaths in the Irish towns last week from the principal epidemic diseases included 70 from diarrhœal diseases, 7 from measles, 6 from whooping-cough, 2 from scarlet fever, 1 from enteric fever, and 1 from diphtheria, but not one from small-pox. The deaths attributed to diarrhœal diseases, which had increased from 8 to 36 in the three preceding weeks, further rose last week to 70, and included 62 of infants under two years of age; of these 70 deaths, 39 occurred in Dublin and 24 in Belfast. The 7 deaths from measles were 3 in excess of the number in the previous week and were all registered in Dublin. The 6 fatal cases of whooping-cough were equal to the number returned in the previous week, and included 3 in Dublin. The 2 deaths from scarlet fever and the fatal cases of enteric fever and diphtheria were all recorded in Dublin. The deaths referred to diseases of the respiratory system in the 22 towns, which had been 52 and 40 in the two preceding weeks, were 44 in the week under notice. Of the 362 deaths from all causes in the 22 towns last week, 108, or 30 per cent., were recorded in public institutions, and 6 were referred to different forms of violence. The causes of 8, or 2·2 per cent., of the deaths registered in the 22 towns last week were not certified either by a registered medical practitioner or by a coroner after inquest; the proportion of uncertified causes of death during the week under notice did not exceed 0·7 per cent. in the 77 large English towns, and was equal to 3·7 per cent. in the eight principal Scotch towns.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Staff Surgeon: F. E. Bolton to the *Hindustan*. Surgeon: A. V. J. Richardson to Chatham Hospital.

ROYAL ARMY MEDICAL CORPS.

The undermentioned Lieutenant-Colonels retire on retired pay: Sir Joseph Fayrer, Bart., Thomas H. F. Clarkson, David M. Saunders, and Herbert W. Austin (dated July 29th, 1911); and George W. Brazier-Creagh, C.M.G., and Daniel Hennessy (dated August 2nd, 1911).

The undermentioned Majors to be Lieutenant-Colonels: Bertal H. Scott, vice J. R. Forrest, retired (dated June 21st, 1911); Brevet Lieutenant-Colonel Oliver A. Julian, C.M.G., vice B. H. Scott, supernumerary to establishment (dated June 21st, 1911); and Eustace A. Burnside, vice H. L. E. White, retired (dated July 3rd, 1911).

The undermentioned Majors are placed on retired pay (dated July 28th, 1911): Robert J. D. Hall, Charles E. G. Stalkartt, Christopher J. Healy, and Thomas J. Lenehan.

Major Francis J. Wade-Brown retires on retired pay (dated July 29th, 1911).

The undermentioned Lieutenants are confirmed in their rank: Charles M. Finny, James D. Kidd, William S. R. Steven, Gordon Wilson, Edward G. S. Cane, Francis A. Robinson, William A. Frost, Douglas Reynolds, Charles D. K. Seaver, William T. Graham, Walter Bisset, William L. E. Fretz, and Patrick Hayes.

Lieutenant-Colonel T. Daly, commanding the Station Hospital at Dalhousie, has been appointed for duty at the Station Hospital, Peshawar Cantonment. Lieutentant-Colonel H. H. Brown has been transferred from Rawal Pindi to take up charge of the Military Hospital at Murree. Lieutenant-Colonel C. C. Reilly, at present holding medical charge of the Royal Military College at Sandhurst, has been selected for a tour of service with the Southern Army in India. Lieutenant-Colonel S. B. Wilson has been placed under orders by the War Office to proceed for a tour of duty at Jamaica during the coming trooping season. Major W. A. S. J. Graham has been transferred from Nowgong to the Station Hospital at Neemuch for duty. Major O. L. Robinson, from Meerut Cantonment, has joined at Kirkee. Major P. J. Probyn, D.S O., on completion of a tour of service in North China, has been appointed to the Irish Command. Major K. B. Barnett, from Shorncliffe, has taken up duty at Eastbourne as medical officer in charge of effective troops. Major J. C. Jameson, on return from duty at Cairo, has been posted to Woolwich District. Major S. H. Withers, from Ambala Cantonment, has been appointed Senior Medical Officer at Gharial Camp, Murree Hills. Major G. S. Crawford, from Wormwood Scrubs Cavalry Camp, has returned to duty in the Irish Command. Major F. R. Buswell, from Kamptee, has been appointed to the Station Hospital at Jubbulpore. Major W. B. Wingfield, from Agra, has been appointed for duty at Chakrata. Captain M. F. Foulds, specialist in advanced operative surgery at Belfast, has been placed under orders to proceed to Mauritius during the coming trooping season. Captain E. S. Worthington, M.V.O., has been selected by the War Office for a tour of duty in North China. Captain W. F. Tyndale, from Kilbride Camp, has joined for duty at Dublin. Captain G. H. J. Brown, on completion of a tour of service in India, has been appointed to the Military Hospital at Strensall. Captain E. J. H. Luxmoore has been transferred from Canterbury to Dover.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel A. L. Duke, first-class agency surgeon and administrative medical officer of the North-West Frontier Province, has been appointed to officiate as Residency Surgeon and Chief Medical Officer of Baluchistan during the absence on leave pending retirement of Lieutenant-Colonel W. A. Sykes, D.S O. H.E. the Governor of Bombay in Council has appointed Lieutenant-Colonel A. Street on return to duty to act as Senior Surgeon and Professor of Surgery to the Grant Medical College, Bombay, in succession to Major V. B. Bennett. Major A. T. Gage, director of the Botanical Survey of India, has been granted three months' leave of absence. Captain S. C. Chuckerbutty has been appointed Special Plague Medical Officer in the Irrawaddy Division. Captain D. G. Rai has been granted combined leave of absence from India for 15 months. Captain R. D. Saigol has been placed on special deputation duty at Amritsar. The services of Captain C. C. Murison have been placed at the disposal of the Home Department for duty at Surat as Civil Surgeon.

TERRITORIAL FORCE.

Royal Army Medical Corps.

2nd Home Counties Field Ambulance, Royal Army Medical Corps: Major David L. Hamilton to be Lieutenant-Colonel (dated June 17th, 1911).

2nd London (City of London) Field Ambulance, Royal Army Medical Corps: Major William Salisbury Sharpe, from the 3rd London (City of London) Field Ambulance, Royal Army Medical Corps, to be Major (dated July 1st, 1911).

2nd North Midland Field Ambulance, Royal Army Medical Corps: Lieutenant Evan L. Jenkins resigns his commission (dated July 29th, 1911).

For attachment to Units other than Medical Units.—William Howard Edwin Stewart to be Lieutenant (dated April 14th, 1911).

INDIAN MEDICAL SERVICE EXAMINATIONS.

The following are the names of the successful candidates, arranged in order of merit, at the examination for Commissions in His Majesty's Indian Medical Service, which was held at the Royal Army Medical College and at the Examination Hall, Victoria Embankment, on July 24th, 25th, 26th, 27th, 28th, and 29th:—

	Marks.
John Alexander Sinton, M.B., B.Ch., B.A.O. R.U.I., D.P.H. Cantab., D.T.M. Liverp., Queen's College, Belfast	3806
Denis Fitzgerald Murphy, M.B., B.Ch., B.A.O. R.U.I., University College, Cork	3721
Edward Randolph Armstrong, M.B., Ch.B. Liverp., D.P.H. Cantab., D.T.M. Liverp., Liverpool University	3572
Charles James Stocker, M.B., B.C., B.A. Cantab., M.R.C.S., L.R.C.P., Cambridge University and St. Bartholomew's Hospital	3414
Eric Edward Doyle, L.R.C.P. & S. Edin., L.F.P.S. Glasg., Royal Colleges, Edinburgh	3346
Cyril Macdonald Plumptre, M.R.C.S., L.R.C.P., Guy's Hospital	3303
Archibald Wallace Duncan, M.R.C.S., L.R.C.P., St. Mary's Hospital	3299
Edward Austen Penny, M.B., B.S. Lond., M.R.C.S., L.R.C.P., Guy's Hospital	3257
George Blenkhorn Harland, M.B., B.S. Lond., Guy's Hospital and Durham University	3243
Leon Francis Brandenbourg, M.B., C.M. Madras, M.R.C.S., L.R.C.P., Madras Medical College and King's College Hospital	3238
John Edward Scudamore, M.B., B.S. Lond., London Hospital	3233
Henry Lewis Barker, M.B., B.S. Lond., M.R.C.S., L.R.C.P., St. Mary's Hospital	3186

ROYAL ARMY MEDICAL CORPS EXAMINATION.

The following is the list of successful candidates for commissions in the Royal Army Medical Corps, for which 44 candidates entered:—

	Marks.
B. H. H. Spence, M.B., Ch.B. Edin., Edinburgh University	622·5
W. B. Laird, M.R.C.S. Eng., L.R.C.P. Lond., St. Thomas's Hospital	606
D. W. Bruce, M.B., Ch.B. Univ. Aberd., Aberdeen University	568
H. S. Blackmore, M.R.C.S. Eng., L.R.C.P. Lond., L.D.S. R.C.S. Eng., University College Hospital	567
E. S. Calthrop, M.B., B.S. Lond., M.R.C.S. Eng., L.R.C.P. Lond., Charing Cross Hospital	565
L. Buckley, M.B., B.Ch. Liverp., M.R.C.S. Eng., L.R.C.P. Lond., Liverpool University	564
F. R. B. Skrimshire, M.R.C.S. Eng., L.R.C.P. Lond., St. Thomas's Hospital	555·5
R. T. Vivian, M.R.C.S. Eng., L.R.C.P. Lond., St. Bartholomew's Hospital	553
T. E. Osmond, M.R.C.S. Eng., L.R.C.P. Lond., B.A. Cantab., University of Cambridge and St. Bartholomew's Hospital	550
E. C. Deane, L.R.C.P. & S. Irel., L.M., Royal Colleges of Physicians and Surgeons, Ireland	549
S. P. Sykes, M.B., Ch.B. Liverp., Liverpool University	544
R. Davidson, M.B., Ch.B. St. And., Dundee University	542
E. G. H. Cowen, M.B., B.S. Lond., M.R.C.S. Eng., L.R.C.P. Lond., Charing Cross Hospital	541
E. B. Allnutt, M.R.C.S. Eng., L.R.C.P. Lond., St. Bartholomew's Hospital	537
J. M. Elliott, M.B., B.Ch., B.A., B.A.O. Dub., L.M., Trinity College, Dublin	535
H. E. Todd, M.B., Ch.B. Edin., Edinburgh University	529
J. L. Ritchie, M.B., Ch.B. Birm., M.R.C.S. Eng., L.R.C.P. Lond., Birmingham University	524·5
M. Drummond, L.R.C.P. & S. Irel., L.M., University College, Dublin, and St. Bartholomew's Hospital	522
A. G. J. MacIlwaine, L.R.C.P. & S. Irel., Queen's University, Belfast	520
W. Stewart, M.B., Ch.B. Edin., Edinburgh University	516

ITALIAN DECORATIONS FOR MEMBERS OF THE SERVICES.

The King has given the undermentioned officers His Majesty's Royal licence and authority to accept and wear decorations which have been conferred upon them by His Majesty the King of Italy in recognition of services rendered by them at the time of the earthquake in Southern Italy in the year 1908:—

Commander of the Order of St. Maurice and St. Lazarus: Surgeon-General James Gaussen MacNeece, Principal Medical Officer, 8th (Lucknow) Division, India.

Commander of the Order of the Crown of Italy: Major Gilbert Stewart Crawford, Royal Army Medical Corps.

Officer of the Order of the Crown of Italy: Captain Henry Stewart Anderson, Royal Army Medical Corps; Captain Harold Charles Winckworth, Royal Army Medical Corps; Captain Percy Arnold Lloyd-Jones, Royal Army Medical Corps; and Surgeon-Captain Robert Randon, Royal Malta Artillery.

Correspondence.

"Audi alteram partem."

INFLAMMATION AND MALIGNANT DISEASE.

To the Editor of THE LANCET.

SIR,—My excuse for sending this communication must be that in the researches which have been made on the origin of cancer, and which I have not the slightest desire to minimise, enough attention perhaps has not been paid to the relation between epithelioma and scirrhus and chronic inflammation. Long ago it was shown how frequently chronic mastitis preceded cancer of the breast. Still, I believe it was looked upon as a more or less accidental occurrence and not a *necessarily* pre-existing condition. Now what does chronic inflammation mean? It means that the inflamed tissue is invaded by a multitude of leucocytes, and continues to be invaded for an indefinite length of time. But at the end of this period a change seems to take place according to the age and resisting power not of the patient but of the tissue. In vigorous tissue these leucocytes are either absorbed or thrust forth in the form of an abscess. Where this does not happen and senility of tissue has taken place, resisting power having vanished, a malignant growth forms. This conclusion may be applied to the parts of the body where external cancers most frequently occur. In the tongue, as far as my experience goes, I have always been able to trace the malignant growth to a pre-existing source of irritation, as a sharp tooth or tooth-plate; in the lip to the well-known short clay pipe, or even to a projecting tooth; in the rectal cancers to fistula or fissures. And there is no doubt examples of pre-existing chronic inflammation may be quoted to almost any extent. So that I think one is justified in saying that chronic inflammation produced by some irritation or other is an invariable precedent to, at any rate, external cancer. In the breast, if a line be drawn horizontally across the organ through the nipple, every cancer I have seen (with few exceptions) has been situated in the upper segment, or at any rate not below the line. That is due, in my opinion, to the edge of the corset pressing against and causing continual irritation in the overlapping part of the breast. The only exceptions have been in old women, and in them the cancer has been situated in any part.

The cells of chronic inflammation are indistinguishable microscopically from cancer cells. The change into malignancy seems to be a gradual process and taking possibly a considerable length of time, this being due to the amount of resistance on the part of the tissues. Hence in feebly resisting tissues one gets the rapidly growing cancers sometimes seen. Until that resistance is overcome malignancy does not occur. If the inflamed area is removed before resistance has ceased, or even very soon after, there is an end of the matter. By resisting power I mean the ability to expel or absorb the invading cells. If after an operation for chronic inflammation or its sequels, such as an abscess, some of these invading cells are left behind and resistance has ceased, then a malignant growth may arise. A woman, aged 41, came to me in October, 1908, with a chronic abscess of the breast. She had had several children and had suckled her last baby up to a few months before. The abscess was opened, it healed up, and she went home. She returned in January, 1909, with a suspicious hardness deep down in the breast exactly at the site of the former abscess. The organ was removed, and a scirrhus of

the size of a small marble was found. The centre of the growth showed the usual stroma, but at the growing edge the cells were losing their round shape and were becoming elongated. Further away they had their usual round formation, exactly like the cells of chronic inflammation. Is it not reasonable to assume that this elongation is taking place at the seat of least resistance, and that these elongated cells will ultimately form the stroma of the cancer as it extends? At the time of the formation of the abscess the inflammatory cells were present, and doubtless were not all removed in the subsequent treatment. These, though not malignant then, developed malignancy later. I am convinced that if all the cell-ridden area had been excised there would have been no cancer. It seems that in any tissue the continued presence of these leucocytes which the tissue is unable to rid itself of makes for malignancy. When does the pre-malignant stage of cancer cease? I should say when these chronic inflammation cells are losing their round shape and becoming elongated. Resistance on the part of the tissues has become feeble or entirely ceased, and malignancy, or at any rate the commencement, has developed. The position may be stated thus: after remaining in the tissues for an indefinite period these cells, if not removed, elongate and become malignant. Repeated attacks of inflammation are not sufficient to produce this—they must be attended by retention of the cells in the tissue and gradual loss of resistance thereof. For instance, even after repeated attacks of gastritis in the drunkard cancer is rare, because probably these cells are absorbed without any delay. Showing the intimate relationship between cancer and chronic inflammation, if any source of irritation be removed before malignancy has set in the parts involved will most probably recover.

I am, Sir, yours faithfully,

H. LYLE,
Senior Surgeon to the Liverpool Hospital for Cancer and Skin Diseases.

Liverpool, July 26th, 1911.

ARTIFICIAL PNEUMOTHORAX IN TREATMENT OF TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—I was very much interested in the important communications by Dr. C. Lillingston, Dr. L. Colebrook, and Dr. S. V. Pearson and Dr. A. de W. Snowden printed in THE LANCET of July 15th. The paper by Dr. Lillingston was most complete, and he seems to have mentioned almost all the possible misfortunes as well as the methods of safeguarding the patient, while the treatment is being carried out according to Saugman's technique. But I should like to discuss one point which surprised me not a little. He describes rather contemptuously the method of Brauer and Spengler as either obsolete or at any rate almost useless. About five years ago I spent nearly two years at Davos-Platz and Davos-Clavadel and heard much of this wonderful operation of Brauer's and saw some of his cases, and they seemed surprisingly successful.

Hearing, as Dr. Lillingston remarks, that the English cases in Davos could not return home last summer because there was no one in England capable of carrying on the treatment, I, at the request of sundry patients and doctors, went out last winter to Clavadel and there learnt all I could of these new developments of the artificial pneumothorax treatment. I have both assisted at and performed the initial operation and the after-fillings a good many times now, and from my comparatively small personal experience and the very considerable number of cases whose notes I have studied I have come to the conclusion that the initial open operation as performed by Brauer is not very dangerous, and that the dangers of pleural reflex, air embolism, sepsis, and so on are greater at the time of the earlier after-fillings, especially when Saugman's needle is used, as it invariably is used by Spengler, Frey, Neumann, Noble, and the other practitioners at Davos.

If this conclusion of mine is true, it seems to me that a combination of Brauer's initial operation, with the use of a fine trocar and cannula fitted to Saugman's needle-mount for the after-fillings, should make the procedure in the majority of cases free from the risks mentioned in Dr. Lillingston's paper. I had such a needle made for me by the Holborn Instrument Supply Company. Dr. Brauer and Dr. Spengler in their latest work on this subject describe some 113 cases of their own. In 26 it was not possible to make a pneumothorax owing chiefly to extensive adhesions, but of the other 87 patients, all having severe disease and going downhill before the operation, 65 per cent. were very favourably influenced by the operations, and in each case the prognosis is now either good or very good.

The technique needs great care on the part of the operator and his assistant, but there seems little doubt that the induction of an artificial pneumothorax is of the greatest use in the treatment of some apparently hopeless cases of advanced pulmonary tuberculosis.

I am, Sir, yours faithfully,

HERBERT RHODES.

Brechin-place, S.W., July 24th, 1911.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN.

To the Editor of THE LANCET.

SIR,—Owing to certain difficulties arising out of the management of this hospital, and the manner in which the grievances in respect of such were dealt with by the board of management, we, the undersigned members of the medical staff, felt compelled, acting under legal advice, to take a certain course. As a result of this action we were called upon to resign our appointments by the board within seven days, and, declining to do so, we have received imperative notice of dismissal, and have ceased to have any connexion with the said hospital. We shall take steps to lay the facts of the disabilities under which we suffered before the profession, and also before certain medical and lay hospital authorities, and in the meantime trust that, should the vacancies upon the medical staff be sought to be filled by the board, would-be candidates, before applying for our late appointments, will make themselves cognisant of the conditions which prevail, and have prevailed, at this hospital both now and in previous years.

We are, Sir, yours faithfully,

ALFRED EDDOWES.
AGNES SAVILL.
G. W. DAWSON.
L. F. KNUTHSEN.

July 17th, 1911.

FRENCH MEDICAL OPINION ON THE BRITISH INSURANCE BILL.

(FROM OUR SPECIAL COMMISSIONER.)

Paris, July 26th, 1911.

THE members of the medical profession in France, and especially those who are members of militant medical unions, are watching with great interest and not a little anxiety the fate of Mr. Lloyd George's Insurance Bill. To them the paramount question is the free choice of the doctor. There must, they say, be no State medical functionaries, and no monopolies created for disposal by the politician who has influence over voters. It is as a medical practitioner and not as a successful canvasser at election times that patients should be able to select their medical attendant. The new Health Committees that are to decide how to carry out the legislative provisions are not likely in French opinion to be neutral in politics. Theoretically, all elected administrative bodies in England, except the two Houses of Parliament, are supposed to have no politics. A municipality is constituted merely for local purposes, though it is often elected now on the lines of the political parties; and this is also the case with less important bodies, such as, in England, the boards of guardians. What, then, is going to be the politics of the proposed Health Committees seems to our French neighbours a vital point. Are they likely to be free from all political bias? Are there, indeed, administrative bodies anywhere that can be considered as free from political bias? Medical men are not themselves absolutely free from political predilections, and their full representation on the committees would not alter this danger. When, in answer to these curious criticisms, I confessed that it seemed to me possible that the medical profession in England, if polled, would show a Conservative majority—a view which I knew many medical men would not agree with—the retort was immediately made that this might account for some of the

opposition to the Bill. I protested to my questioners that every effort had been made, on the contrary, to exclude politics from the discussion of the Bill, and that the Conservative party, by the voice of its leaders and in its journals, had expressed its approval of the general principles of the Bill. The idea of political bias was firmly rooted in their minds, and they continued to point out that a medical adviser must not be imposed on a patient because he had found favour in the eyes of some authority or other. If such authority is not guided in its choice by political motives, it is likely to be influenced by family or personal interests; in fact, by any number of considerations save the one and only reason that should govern the choice of the medical attendant.

The French View of Vested Interests in Club Practice.[1]

The only means of excluding influences that should not be brought to bear was, from the French viewpoint, to allow the medical practitioner to appoint himself. This, I explained, was exactly what would happen in the majority of cases. Any fully qualfied practitioner who was willing to do the work could inscribe his name on the panel, but there remained a minority of cases where the patient would not be free to send for the practitioner he might prefer. There were the medical men at present employed at regular salaries by the Friendly Societies, and these salaries were likely to be treated as vested interests which must not be disturbed. The same difficulty has arisen in France, though the term "vested interests" does not exist there. It is replaced by the very appropriate expression "acquired situations" (*situations acquises*). Dr. M. Vimont recently published an eloquent protest against the excess of consideration shown to "acquired situations" under the contract system. In the *Concours Médical* he explains that he has himself served as the medical officer of various Friendly Societies and quite understands the anxieties of these poorly paid practitioners. Nevertheless, he questions whether their position as the salaried medical officers of mutualist organisations or Friendly Societies can be considered as a vested interest. He draws a picture of the young practitioner remaining at home, depriving himself of holidays for fear of losing a patient, devoting himself with the utmost assiduity to the few patients who send for him, till at last, after much privation and many efforts he wins a good name and establishes a practice. This, indeed, is an "acquired situation," and is due entirely to personal effort and merit. But by-and-bye, though he has in no wise modified his manner of treatment and has been and is just as successful, his patients leave him one by one. They leave him because they join the Friendly Society of the industry in which they are engaged. At first, however, he continues to attend to wives and children, but in course of time even that fails him, for the Friendly Society extends its field of action and takes in the women and children as well. Here, then, is a vested interest destroyed by a Friendly Society, which imports a medical officer and makes him attend patients on charity terms with the aid of an elaborate system of advertising and touting. Then, as a climax, when a reform is proposed, it is urged with due solemnity that respect must be shown for the vested interest of the Friendly Society's medical officer; the vested interest of the very man who has destroyed by unfair competitive methods the best, the most worthy, form of vested interest that can possibly exist.

The "Medical Monopoliser."

The "medical monopoliser," as he is called in France, is one who acquires a vested interest in medical practice not by reason of his personal efforts and successful experience among the sick and the suffering, but by going about hat in hand soliciting a post, bringing outside influences to bear, getting people who have nothing to do with medical practice to recommend him to the lay committee managing a Friendly Society. He surrenders his personal independence, he consents to become the salaried servant of a number of persons who know nothing about the medical profession or medical matters, he accepts payment that is much below the prevailing custom, and thus damages not only his own interests—which Dr. Vimont holds him at liberty to do—but also the interests of all his colleagues, which is most unfair and most reprehensible. He allows himself to be imposed, to be forced, upon a sick man, instead of waiting until, as a consequence of the honourable exercise of his profession, the sick man is inspired with confidence in him and voluntarily sends for him. On one side we have the medical practitioner who has acquired a practice by his own skill, science, and hard work; on the other is a practitioner who owes his practice to the fact that he was appointed by a lay committee, and was willing to violate the fundamental principles of the profession of medicine. Where rests the vested interest? Does it rest with the independent practitioner or with the practitioner who has sold himself?

Proposed International Action in Regard to the Bill.

Mr. Lloyd George, on more than one occasion, has expressed his approval of the principle of free choice of medical attendant by the patient. But if the wage limit is to be maintained at £160 a year and the payment is not to be much higher than 6*s.* a year, then it seems quite obvious that many practitioners will suffer, and suffer severely, in their pockets. In fact, their vested interests will be affected.

The French practitioners with whom I discussed this matter viewed the prospect of British legislation setting such an example with little short of terror. Such a bad precedent, they said, would be extremely injurious to their British colleagues, and would check the campaign now successfully in progress in France against similar abuses. Would it not be possible, I was eagerly asked, for some representative British and French medical men to meet and draw up a joint manifesto? The *entente cordiale*, surely, was not a mere empty sound—a pretty sentiment with nothing practical about it. Here, in France, the economical difficulties besetting the medical profession were almost identical with those obtaining in England. Would it not lend greater weight to the demands brought forward if they were simultaneous and similar in both countries.

An Opportunity for Reform.

The great benefit of the proposed law is the panel, but only, my French friends say, if it is universally applied. It is bad enough that medical monopolies should have been created by Friendly Societies and medical aid clubs of all sorts, acting as private organisations established by private enterprise. Against such a procedure medical men have formed militant unions and have collected strike funds, and there have been many medical strikes throughout Europe. The Governments may plead that where freedom of association exists they are not responsible for what these associations may do. But Governments are responsible for the laws they present to Parliament. If, under private enterprise, a mischievous and bad system has grown up, a system that has been condemned by at least nine out of every ten medical practitioners in England, France, Germany, Belgium, and in fact throughout Europe, it surely is not the rôle of any Government, seeking to legislate for the public good, to give legal sanction to abuses. The Friendly Societies and medical aid clubs must no longer be allowed to impose upon their members such medical men as their managing committees may choose to appoint, or to oppress their medical officers. The Health Committees to be created under the proposed law will be able to see that the panel is open to all who are properly qualified. The club doctors of good professional repute should not lose anything by the abolition of their function as club doctors. They have only to put their name on the panel and their patients will continue to send for them just as before. If, on the other hand, they have not been acceptable to the patients, the law should have no right to interfere with the liberty of the patient and force him to accept medical attendance he does not wish to have. In Germany and in France, where strenuous resistance is being organised against such an abuse, its legal sanction by a British law would be looked upon as a retrograde measure likely to have an injurious moral effect throughout the continent.

[1] The article was written, of course, before the agreement was come to in the House of Commons on Clause 13 of the National Insurance Bill.

SEVENTH INTERNATIONAL CONGRESS OF DERMATOLOGY AND SYPHILOLOGY.—This congress will be postponed from September, 1911, to the middle of April, 1912. This delay is due to the fact that many of the foreign committees have found the month of September very unsuitable for their members. Previous references to this congress were made in THE LANCET of May 20th, 1911 (p. 1395) and Sept. 17th, 1910 (p. 921).

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Extensive Outbreak of Ptomaine Poisoning at Bacup and Elsewhere.

AT Whitsuntide a severe outbreak of what seems to be ptomaine poisoning occurred in the Rossendale Valley of Lancashire, whereby over 150 people were affected, in some instances whole families being rendered seriously ill. Bacup was the chief centre of trouble and had the largest number of cases. The cause is alleged to be eating of potted meat at a time when the weather was such as to conduce to the formation of irritant substances which bring symptoms like those of ptomaine poisoning. Five such cases are reported as having ended fatally at Bacup. Three cases occurred at Oldham, two of the victims having eaten some potted meat at a friend's house in Bacup; while a third who had visited Bacup was reported to be suffering from ptomaine poisoning. Over 50 persons in Chesterfield required medical aid owing to a virulent attack of ptomaine poisoning, while a somewhat similar outbreak occurred in Over Peover in Cheshire after the Coronation festival, whereby about 40 persons were attacked with symptoms pointing to ptomaine poisoning.

Manchester Education Committee: Report on Manchester School Children.

From the report of the Manchester Education Committee I learn that the number of elementary school children at the end of last year was 121,087, and of these 7445 were under the age of five, a number equal to a percentage of 6·2 in Manchester schools, as compared with 6·9 in those of England and Wales generally. The number of scholars over 12 years of age was 22,853, and that between 14 and 17 years of age 40,000. The number continuing their education, either in evening or secondary schools, did not exceed 15,000, so that 25,000, or over 60 per cent., were attending neither day nor evening schools. It appears that for England and Wales generally over 74 per cent. of scholars do not continue their education either at day or evening schools. It is gratifying to find that since attention has been directed by the medical officer to physical defects on the part of the children, heed has been given to his suggestions in the case of 92 per cent. of the total number. As usual, a large number of children were found to be suffering from defects of sight. Many of the parents manifest a strong antipathy to their children wearing spectacles. This may in part be explained by the fact that the wearing of spectacles is considered to lower a child's value as a working unit when it comes to leave school. It may also be partly due to the reluctance to pay for the glasses. During the year 273 children were supplied with spectacles. It is stated that Jewish children, as a rule, have very bad sight, which, it is suggested, is partly to be ascribed to their having to learn Hebrew; for only the boys are taught Hebrew, and it is they who suffer much more than the girls from defective vision. Jewish children are better nourished than Gentile children, and the Jewish boys and girls reach a higher anthropometric standard than Gentile boys and girls. No cases of mental defect were found in nearly 1000 Jewish children, whereas 0·6 per cent. of Gentile children were found to be mentally defective.

British Universities Students' Congress.

About 50 delegates, representing 17 British universities and colleges, assembled recently in the University of Manchester. Amongst other interesting matters discussed was the question of the recognition of British medical degrees in Germany. It was reported that negotiations with the German Government asking it to repeal an ordinance withdrawing recognition to British degrees in the case of candidates for a doctor's degree in Germany had been successful in obtaining redress from all German universities outside of Prussia. Similar negotiations in the case of degrees at Swiss and Austrian universities had met with complete success. The question of the possibility of the interchange of examinations and the recognition of the courses of the various British universities within the Empire was discussed and referred to a committee.

Annual Report of Manchester and Salford Sanitary Association.

The annual report of this association for 1910 has just been issued. Thanks in part to the efforts of the association in regard to the "conquest of consumption," the view is expressed that some of our authorities seem to show a disposition to take action of the kind advocated by the association. The other two subjects which have engaged the attention of the association are the smoke nuisance and the care of the feeble-minded. Again there is a falling-off of revenue. It is truly remarkable what excellent work is done by this association, although the income is only about £90 per year. More might legitimately be expected from a great city like Manchester and an ancient borough like Salford. The cheap series of publications, such as "Health Lectures for the People" (1*d.* each), and leaflets for distribution amongst the community should be better known and funds provided for their distribution.

Opening of the New Extension of Salford Royal Hospital.

Lord Shuttleworth opened the new buildings of the Salford Royal Hospital on July 6th. With this extension the hospital equipment meets the most advanced requirements of medical and surgical science. The increase in beds is from 119 to 209. Lord Shuttleworth recalled the fact that his father was a physician and took an active part in combating the epidemic of cholera which swept over Manchester in 1831. After speaking of the remarkable advances in surgical practice during the last 60 years, his lordship touched upon the extreme desirability of municipal corporations giving themselves most thoroughly to the task of clearing away those places to which the horrible word "slum" was attached. He expressed the faith that the new extension would prove a priceless boon to thousands of the people in the present and in future times. The extension committee collected £50,000 in four years in aid of the hospital.

July 31st.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool Hospital Saturday and Sunday Funds.

THE joint honorary treasurers of the above-named funds have distributed £10,100 amongst the following institutions: Liverpool Royal Infirmary, £2075; Royal Southern Hospital, £1450; David Lewis Northern Hospital, £1425; Liverpool Stanley Hospital, £775; Liverpool dispensaries, £575; Liverpool Infirmary for Children, £550; Queen Victoria District Nursing Association, £525; Liverpool Eye and Ear Infirmary, £375; Liverpool Hospital for Consumption, £300; Hospital for Women, £300; and St. Paul's Eye Hospital, £300. Other institutions of lesser magnitude received sums varying from £250 to £25. The number of beds contained in the several charities determined the amounts apportioned.

Liverpool Maternity Hospital: "Coronation Year Fund."

In April last the Lady Mayoress made an urgent appeal on behalf of the Liverpool Maternity Hospital, and a "Coronation Year Fund" was opened which realised £2000 odd. Up to last March £10,000 had been raised towards the endowment fund, which Sir William Hartley made conditional on his erecting a new hospital. A promise of £500 has also been made by a lady, provided a like sum is forthcoming from other sources. To facilitate matters Sir William Hartley has now kindly consented to modify his original proposal, and will commence the building of the new premises, which are to be erected on the site of the old almshouses in Cambridge-street, when £15,000 shall have been raised, relying on the balance of the fund being obtained when the edifice is completed.

New Assistant Surgeon at the Royal Infirmary.

Mr. H. F. Woolfenden, F.R.C.S. Eng., surgical registrar to the Royal Infirmary, has been appointed honorary assistant surgeon in the room of Mr. T. C. Litler Jones, promoted honorary surgeon

August 1st.

NEWCASTLE-ON-TYNE.

(FROM OUR OWN CORRESPONDENT.)

The Abuse of Charity.

THE deputation appointed by the Royal Victoria Infirmary, Newcastle-on-Tyne, to visit other hospitals have just issued their report. It states that visits were made to the Leeds General Hospital, Manchester Royal Hospital, and the Liverpool Royal Hospital, and very careful and exhaustive inquiries were made. It has learnt that in Manchester and Leeds especially a real effort has been made to deal with the abuse of charities and the delay in the admission of patients; that in the metropolis these difficulties are less acute than in the provinces, hence less effort has been made to introduce any alteration in the mode of admission of patients. The house committee of the infirmary is understood to be now dealing with this report with a view to framing a scheme of admissions upon it. The main principles of the systems in the provincial hospitals visited are summed up in attempts (1) to admit patients through one channel; (2) to facilitate the admission of patients through the out-patient departments; (3) to bring into some co-relation the various waiting-lists of the honorary staff; and (4) to prevent the admission of unsuitable persons. It is reported that at the inspected hospitals the honorary staff had relinquished their positions as the sole admitting authorities, and have been content with the right to admit a certain number of cases per month; that to carry out the investigations necessary there were in the hospitals paid medical and surgical officers of superior standing to the ordinary house physicians and house surgeons; and that, further, there was in Leeds and Manchester a system of almoners working with the Charity Organisation Society. In Manchester there is, in regard to out-patients, a definite wage-limit per family, above which medical attendance and medicine are not given. It is considered that as the result of this report some similar scheme will be introduced by the house committee in the Royal Infirmary. This question of hospital abuse has been the subject of much discussion in the district. The district is so largely artisan, and the working man contributes, in weekly subscriptions of a penny or twopence, such a large proportion of the income—more than half the total hospital income last year—that it cannot be wondered this question has been hotly discussed from time to time and from several points of view in the last few months. The medical profession of the city and district is exceedingly anxious concerning the trend of affairs and would be glad to see some effective means of checking abuse. Whether the example of Manchester in the direction of a wage-limit will be followed is a great problem; it is to be hoped that it may, but such a point will certainly meet with great opposition from the working-man subscriber, who now avowedly considers the institution as existing for his especial benefit, on the lines of a benefit society, kept up mainly by his efforts; he is entirely unmindful of the original foundation of the charity—"for the sick and lame poor."

The National Insurance Bill.

A deputation of medical men from the Newcastle Division of the British Medical Association has been received by the local Members of Parliament—Mr. Edward Shortt, K.C., Mr. J. M. Robertson, and Mr. Walter Hudson. The deputation was headed by Dr. J. Don, Dr. H. L. Rutter, and Dr. T. Beattie, who spoke at some length concerning the Bill, voicing their wishes for adequate remuneration, a free choice of doctor by the patient, a free voice in the local management of health committees, and the establishment of a local medical committee with statutory recognition for the purpose of conferring with the local health committee. The Members gave a sympathetic hearing to the deputation and promised a full and complete consideration of the points laid before them. Mr. Shortt and Mr. Robertson also received a deputation from the Royal Victoria Infirmary; this was headed by Sir Riley Lord, Dr. G. H. Hume, Mr. R. H. P. Orde (secretary of the infirmary), Mr. Charles Irwin, and Mr. Cairns (of the Northumberland Miners' Association). This deputation dealt with the portions of the Bill which have special reference to hospitals, and mention was made of the endangering of subscriptions to hospitals, while the work of those institutions would be largely increased. The deputation thought there might be some sort of an arrangement by which the Treasury could supplement what was done locally, as was suggested by Mr. Lloyd George with regard to the extension of sanatoria work to women and children.

July 31st.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

University of Bristol.

PURSUING a policy already in effect in the departments of anatomy and physiology, the University has appointed a whole-time demonstrator to assist the professor of pathology, who in addition to his university post holds that of pathologist to the Royal Infirmary.

The Bristol Guardians and their Medical Officers.

Mr. F. C. Morgan, medical officer to the Eastville workhouse, having resigned, the Bristol board of guardians has been considering the advisability of a readjustment of the medical care of their workhouse inmates. Under the present arrangement the medical officer to the Stapleton workhouse receives £250 per annum with a residence, and £20 per annum for the headquarters homes, while the medical officer to the Eastville workhouse has received £250 per annum, with £30 in lieu of residence. The guardians' hospital committee recommends certain changes which aim at placing the work at both institutions under one chief medical officer with an assistant. It is suggested that the senior officer should reside at the Stapleton workhouse, receiving £330 with residence, the assistant officer living at the Eastville workhouse and receiving £100, with board, lodging, and washing, or £140 on condition that he lives close to the workhouse. This magnificent salary is offered for assistance in the case of both the workhouses and the headquarters homes. Its inadequacy was pointed out by Dr. W. L. Christie, one of the guardians, but the proposition was agreed to. Fortunately, the scheme is for 12 months only, and Dr. Christie gave notice to move that the resolution be rescinded.

Compulsory Notification of Tuberculosis.

The Bristol health committee has sent a report to the city council recommending the introduction of compulsory notification of phthisis. There is a system of voluntary notification in force in Bristol, and this, with the compulsory notification of institution patients recently introduced by the Local Government Board, has proved of so much value that it is felt advisable to extend notification till all phthisical patients are included.

July 31st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Dr. Jessie Macgregor Prize in Medical Science.

THIS prize, which is in memory of the late Jessie Maclaren Macgregor, M.D. Edin., is awarded triennially for original work done in any branch of medical science during the three years preceding the award, and is of the value of £50. The award is in the hands of a body of trustees, consisting of the Dean of the Faculty of Medicine of the University of Edinburgh, the President of the Royal College of Physicians, Edinburgh, the treasurer of the Royal College of Physicians, Edinburgh (to whom applications have to be made), the President of the Royal College of Surgeons, Edinburgh, and three medical women, resident in Edinburgh, to be coöpted by the other four trustees. Applicants must have studied for at least one year at a school of medicine in Edinburgh, and must be either graduates of a Scottish University or holders of the triple qualification. The first recipient of the prize is Agnes Ellen Porter, M.D. Edin., the award being made for work done in the departments of bacteriology and physiology, and especially for research into the precipitative reaction in tuberculosis.

Outbreak of Small-pox in Lochee.

An outbreak of small-pox has occurred at Lochee, involving members of three families residing in the west end.

The first case was that of a man who had been suffering for a few days. The case was diagnosed as small-pox, and the patient was removed to hospital on July 22nd. Two days later another case hailing from the same property was discovered. The patient, in this instance a woman, was on intimate terms with deceased's family, and had assisted them in their affliction. She was also removed to the small-pox hospital at King's Cross, and both families were removed to the reception house. A third case was discovered on the 27th, that of a young woman who resided in the vicinity where the other cases occurred. The first case succumbed on the evening of his admission to hospital; the other cases are doing well. The origin of the outbreak has not been traced. The area in which the cases have occurred is in the open country.

Turriff District Hospital: Annual Meeting.

The annual meeting of the committee of management of the Turriff District Infectious Hospital was held on July 27th. Thirty-five patients have been treated in the hospital during the year ended May 15th last. Fourteen of these were cases of diphtheria and 21 scarlet fever. At the beginning of the year there was a balance of £35 0*s.* 5*d.* and at the end of the year a balance in hand of £29 11*s.* 9*d.* The clerk submitted a statement of the probable expenditure for the current year, which amounted to £494 11*s.* 9*d.*, less balance, leaving £465 to raise by assessment, £347 2*s.* 11*d.* falling to the Turriff district and £117 17*s.* 1*d.* to the burgh of Turriff. The meeting agreed to intimate accordingly.

August 1st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Dublin Hospitals and the Insurance Bill.

AT a meeting of representatives of the chief Dublin hospitals held last Monday to consider the effect of the National Insurance Bill on the hospitals of Ireland, the following resolutions were carried:—

1. That this conference is of opinion that the National Insurance Bill as introduced into Parliament will, if unamended, have an injurious effect on the income of the hospitals of Dublin.
2. That hospitals and dispensaries by which services are rendered to assured persons should receive the actual cost of the expenditure they have incurred for such services under conditions that will preserve the independence of the voluntary charitable institutions concerned.
3. That Clause 15 be amended so as to provide that hospitals and dispensaries should receive the same benefits as sanatoria.
4. That voluntary hospitals be excluded from contributing under the Bill, or, in the alternative, that power be given to the Insurance Commissioners to pay the contributions of employers in addition to the Imperial contributions in the cases of voluntary hospitals out of the funds at their disposal.
5. That in maternity cases treated in hospital wards the allowance be paid directly to the assured person.

Vital Statistics of Ireland.

The annual report of the Registrar-General for Ireland, just presented to Parliament, states that the mortality-rate per 1000 from phthisis in the years 1907, 1908, 1909, and 1910 has shown a successive decrease—viz., 2·7, 2·6, 2·4, and 2·3 respectively. The marriage-rate shows a decrease of 0·12 per 1000 as compared with 1909, the birth-rate a decrease of 0·2, and the death-rate of 0·1. Of the 101,963 births, 52,103 were of boys and 49,850 of girls. 97·2 per cent. of the children were legitimate, the highest rate of illegitimacy being in Ulster, 3·7 per cent., and the lowest in Connaught, 0·7 per cent. The number of emigrants who left Ireland in the year was 32,457.

Lunacy in Ireland.

The annual report of the Inspectors of Lunatics in Ireland was laid on the table of the House of Commons two weeks ago. The summary of the number of insane under care shows an increase during the year 1910 of 250; the corresponding increase in 1909 was 213. The average annual increase in ten years was 328. The number of insane in workhouses has decreased by 84. The percentage of recoveries to admissions was 36·5, being 1·9 lower than that for the previous year.

The Abbey Sanatorium.

Mr. Robert Hall, medical officer to the Abbey Sanatorium, Belfast, has presented his report for the half-year ending March 31st, 1911. Of the males, 19, and of the females, 11 (total, 30) were discharged as "greatly improved"; 142 (95 males, 47 females) were discharged as "improved"; 29 (16 males, 13 females) left "not improved"; 23 (12 males, 11 females) were "not long enough in sanatorium"; and 64 (43 males, 21 females) died; in other words, a total of 288 patients (185 males, 103 females) altogether were treated during the half-year. Of these, 105 (67 men, 38 women) were married, 35 (18 men, 17 women) were widowed, and the remaining 148 (100 men, 48 women) were single. Of the 185 males, the age-period varied from 5 to 73 years. The age-period 25 to 30 years supplied 26 cases; 25 were between 35 and 40; while between 30–35 years and 40–45 there were 24 each. Of the occupations, 89 were labourers, 24 housekeepers, 15 spinners, and 11 weavers; the others belonged to almost every type of worker. Mr. Hall recommends in his report the building of a large self-contained pavilion to accommodate female patients, the appointment of a second resident medical officer, the erection of a verandah round the front of the hospital, and an inter-telephonic exchange. He draws attention to the constantly arising difficulty that patients suitable for sanatorium treatment show a strong dislike to entering the infirmary lest they should be considered as paupers, yet this course is necessary, because the institution is under the Poor-law system. There should certainly be a broader field of admission by which the consumptive poor could enter this admirable sanatorium without being branded as paupers. The best solution would be for the public health committee of the city of Belfast to take over the charge of the place as the central authority. The Abbey Sanatorium was acquired by the Belfast guardians in the autumn of 1904, and was opened for 40 patients in January, 1905, while at the beginning of 1908 there were 265 beds. It is interesting to note that in 1905 (the year the Abbey was opened) 1116 patients died from consumption in Belfast, in 1906 the number was 1015, in 1907 it fell to 926, in 1908 it was 880, and in 1909 it was 811. Mr. Hall thinks that a wider field of admission to the Abbey would produce still more gratifying results. This sanatorium is an excellent example of what can be done for the Irish consumptive by an intelligent body of Poor-law guardians, aided by an enthusiastic medical officer.

Consumptives in Irish Workhouses.

At a meeting of the Strabane (county Tyrone) board of guardians held on July 25th a resolution was unanimously passed to the effect that separate accommodation for consumptive patients be provided, and that a committee be appointed to prepare a scheme for the approval of the board.

The Royal Sanitary Institute.

The twenty-sixth Congress of the Royal Sanitary Institute has been in every respect a great success. The discussions in all the sections and conferences have been admirable, largely in consequence of the prior publication in book form, obtainable by each member, of the various papers to be read. On July 25th, in the Conference on the Hygiene of Childhood, Sir John W. Byers (the President) delivered the inaugural address on the Hygiene of the Child, with Special Reference to Ireland, to which reference was made last week. Then followed two discussions, the first, introduced by Professor J. A. Lindsay, on the Hygiene of School Life; and the second, introduced by Dr. Alfred Greenwood, on Infantile Mortality in Large Towns. A most interesting discussion, in which several speakers took part, followed on the Dental Hygiene of Childhood, introduced by Mr. George Thomson, L.D.S. On the same day, in the Section of Sanitary Science and Preventive Medicine, the address of the President, Sir Lauder Brunton, Bart., was read in his absence, as we noted last week. A discussion on Sewage Purification and on Purification of Rivers and Estuaries followed. In the same section, on July 26th, Dr. J. King Kerr read a paper on Typhoid Prevention, Dr. W. J. Wilson and Dr. C. Dickson read one on the Viability of the B. Typhosus in Water and its Isolation Therefrom, and Dr. Thomas Houston made a communication on Epidemic Cerebro-spinal Meningitis. In the Conference of Municipal Representatives on July 25th, at which the Lord Mayor presided, Dr. P. Boobbyer read a paper on Municipal Hospitals. On the same evening Dr. Louis C. Parkes gave a popular lecture on the Prevention of Tuberculosis: a National Task. In the Section of

Engineering and Architecture, on July 26th, a paper was read on How a Town Succeeded without a Town Planning Act; and on July 27th, in the Sanitary Inspectors' Conference, one on the Smoke Nuisance and Dairies and Milk Supply. In the Conference of Women Dr. Eric Pritchard read a paper on the State Endowment of Motherhood, which gave rise to a very fine discussion. After this Dr. John McCaw read a communication on the Reduction of Infant and Child Mortality from Measles. Papers were also read on Women in Public Health and on Hygiene and Industrial Employment by Miss H. Martindale, H.M. senior lady inspector of factories; and one by Dr. Elizabeth G. Bell on Babies' Clubs, in which she described very fully these institutions in Belfast, which were greatly commended by Dr. Eric Pritchard. A vote of thanks to the Lady Mayoress for acting as President was carried. In the Conference of Medical Officers of Health Dr. Samuel Agnew read a paper on the Medical Officers of Health in Ireland. On July 29th Mr. P. C. Cowan gave an interesting presidential address at the Conference of Engineers and Surveyors, after which there were papers on the Discharge of Sewage into Tidal Waters, and on the Dust Nuisance. In the Conference of the Port Sanitary Authorities Dr. R. Thomson gave the presidential address, after which Dr. Herbert Williams of London read a paper on Plague Precautions in Reference to the Destruction of Rats, and Dr. W. Hanna of Liverpool read a communication on the Importation of Unsound Food. In the Veterinary Inspectors' Conference Dr. H. O'Neill read a paper on Meat Infection, and described the new Belfast public abattoir. At the final meeting of the Congress on Friday votes of thanks were passed to various local bodies and to the Earl and Countess of Aberdeen. Saturday was devoted to excursions.

Condition of Irish Schools.

In several papers read at the Sanitary Congress last week in Belfast attention was called to the insanitary condition of Irish primary schools. For years past the Board of National Education has been urging on the Treasury the necessity of fulfilling the promise made by successive Chief Secretaries to find funds to improve and maintain the school buildings. In many cases the expenses of cleaning and heating had to be borne by the teacher himself out of a stipend less than that of a policeman. At length the Government is to find funds to pay half the expense of cleaning and heating the schools, the other half being paid out of local sources. There is, however, no provision for the cost of installing heating and ventilating apparatus. The buildings themselves, moreover, are in many districts utterly unsuitable as school premises. "All types of school buildings are to be found," says our inspector, "from the well-equipped modern school down to the wretched thatched cabin by the roadside, or the equally objectionable erection in a graveyard." One can hardly expect a high standard of hygiene from working classes who receive their education in such surroundings.

July 31st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Diminution of Hydrophobia.

SINCE the first years when Pasteur's discovery of the antirabic vaccine was utilised for the treatment of persons bitten by mad dogs statistics have shown a constant decline in the number of deaths. In the year 1910 the numerical records of the Pasteur Institute, compiled by M. Jules Viala, *préparateur* in the antirabic department managed by Dr. Roux, show that 401 patients had antirabic treatment without any case of death being reported. In the year 1886 the number of persons who after being bitten were treated in the Pasteur Institute was 2671, and among them there were 25 deaths, but in 1896 there were 1308 patients with 4 deaths. Since that time the cases of hydrophobia have diminished from year to year, and the number of bitten persons treated annually at the Pasteur Institute has been under 1000 since 1902. There was 1 death in each of the years 1908 and 1909, the number of patients being 524 in the former and 467 in the latter. Among the 401 cases treated at the Pasteur Institute in 1910 there were 11 foreigners, including 3 of British and 8 of Spanish nationality.

The Physiological Effects of Aeroplane Flying.

The increasing number of aviators and the development of aeroplane flying have given opportunities for making some interesting observations on the physiological conditions incidental to this new method of progression. Several factors have to be taken into consideration. Rising to a great height in the air produces effects similar to those of mountain sickness—namely, giddiness, nausea, and headache; but owing to the rapid transition from a low level to a high one or conversely, the blood pressure if it is altered is not allowed sufficient time to become steady as it can do in mountain climbing; the conditions, in fact, have some resemblance to those of a balloon ascent or of an abrupt descent, and even more resemblance to what is seen in the case of subaqueous workers who are quickly brought to the surface from a diving bell, although in aviation the pressures are very much less. There are also great variations with different individuals, for attacks of mountain sickness and other discomforts due to change of pressure are experienced by some at a height of 1500 metres, while others are not affected until they reach 2000 metres. All the observations that have been made show that the blood pressure is increased, but only to a slight extent because it is counterbalanced by the free access of air which, according to the researches of Langlois, tends to reduce the blood pressure. Other factors to be considered are the duration of the flight and the encountering of difficulties. Nervous fatigue lowers the blood pressure and quickens the pulse. The nervous tension brought about by the necessity for being continually on the alert in presence of dangers has a special influence which varies according to the temperament of the individual. I had an opportunity of examining the aviator Beaumont when he came down from his machine after having won the prize for the European circuit. He was remarkably calm and his pulse-rate scarcely reached 85, but he told me that his great natural composure and his long practice in making ascents did not prevent him from having sensations of emotion and cardiac palpitation in moments of danger. As a general result it may be said that aeroplane flying does not cause any special form of illness. Increase of the blood pressure is the most constant phenomenon, but it is very difficult to collect comparable data from different individuals, because this hypertension is counteracted to a variable extent by such influences as the altitude, the length of the flight, the sensation of danger, and the amount of composure possessed by the aviator.

Dogs in the Medical Service of the Army.

The manœuvres in which the medical department of the army has been engaged with a view to the training of the officers both of the active forces and the reserve have once more shown that dogs may be taught to trace wounded men and guide relief parties to the place where they may be lying. Conclusive experiments have already been made at Nancy, at Rennes, and at Lyons, with the result that these dogs—the so-called *chiens sanitaires*—will henceforth be regularly attached to the service of the French army, and a national society has been formed for the purpose of providing a supply of trained animals. At Vincennes, where the recent manœuvres were held, it was remarkable how quickly a stretcher party accompanied by a trained dog could thoroughly examine every part of an extensive area and carry off soldiers concealed in thickets and under branches in the most difficult conditions. A dog can also work by itself. When sent by its master in a certain direction it finds the wounded man, allows him to take the various articles attached to its collar, and carries his cap back to its master, who fastens a string to the dog's collar and is immediately guided to the place where the man was found. If a cap is not to be had the dog searches with its foot or its nose in the man's pockets and takes a handkerchief, a glove, or some other article which may serve for identification. The dog has a collar to which a bell can be attached, and on its back a piece of cloth fastened to its neck with a strap and marked with the Geneva Cross; it also carries a cloth pocket. Retrievers are preferred to dogs which bark and may thereby give much trouble. The qualities chiefly desired in a *chien sanitaire* and developed by training are a keen sense of smell, absolute obedience to

orders, endurance, and especially gentleness so as not to alarm a wounded man. The presence of these qualities was universally recognised in all the dogs at the manœuvres. For those which are to be used in the French army the Minister of War has ordered a military kennel to be established at Fontainebleau, under the management of Captain Tollet. Another kennel was some time ago constructed at Auxerres and proved very successful. This work is very valuable under the conditions of modern war, both in Europe and in the colonies. The first requisite is the relief of the brave men who have fallen in the defence of their country. If left a long time on the battlefield they are liable to be attacked by birds of prey, and in colonial expeditions they have sometimes been mutilated by returning natives. Modern methods of fighting, the movement of troops over considerable areas during a battle, the long range of modern rifles and artillery, and night fighting make ambulance work very difficult. The number of missing men is always considerable, because picking up the wounded during an action becomes less and less possible. At Rezonville there were 1367 killed and 5472 missing, while at Saint-Privat there were 1146 killed, 6709 wounded, and 4420 missing. Some of these have been wounded men who dragged themselves into sheltered places and died there without receiving any help. The trials which have been made with the *chiens sanitaires* have shown the importance of keen scent for them whatever may be their breed, whether pedigree or not. Their work is of a kind not unlike that of the dogs of the *hospices* of the Great Saint Bernard which rescue persons who have sunk in the snow.

The late Dr. Charles Nélaton.

M. Charles Nélaton, well-known as a hospital surgeon, has just died from embolism at the age of 60 years. A son of Dr. A. Nélaton, who was a member of the Institute and surgeon to the Emperor Napoleon III., he walked in his illustrious father's steps. In 1876 he became *interne des hôpitaux*. In 1880, when he was admitted doctor of medicine, he wrote a thesis of some celebrity entitled, "Effusions of Blood into the Pleuræ after Injuries." In the following year he competed for and obtained the position of surgeon to the Paris hospitals, and in 1889 he became *agrégé* in the Paris Faculty of Medicine. Some of his works highly valued by specialists included "Tubercle in Surgical Affections," "The Relations of Injuries and Heart Disease," "The Causes of the Irreducibility of Old Dislocations of the Hip-joint," and "Non-malignant Tumours of the Bones." In concert with his colleague, Dr. Ombredanne, he wrote treatises on "Rhinoplasty" and on "Autoplasty." He was vice-president of the Surgical Society. His death is a loss to the Hôpital Boucicaut, where he gave many proofs of his professional skill and his kindly disposition. Of unassuming personal character, he will be remembered as a man of eminence in his profession, and one who would have probably accomplished much more if his life had been prolonged. His goodness of heart was well shown by his self-denying behaviour at a competition in which he had done well at the examination and was certain of coming out first. His success, however, would have entailed the defeat of another candidate, an excellent man less happily circumstanced than Nélaton, who retired from the competition so as not to stand in the other's way. Incidents of a similar kind were frequent in Charles Nélaton's life, and caused him to be highly esteemed by the members of his profession who are now mourning his decease.

July 31st.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

The Diet in Epilepsy.

AT a recent meeting of the Budapest Royal Medical Society Dr. Donath read a paper on the above subject. He said that the directions for diet in cases of epilepsy were usually limited to the avoidance of indigestible articles of food and the avoidance of stimulants. Useful, no doubt, as far as they went, such directions could not be regarded as adequate or commensurate with our knowledge of the deleterious influence of certain articles of food on an organism prone to epilepsy. It had long been held that a diet too rich in albuminoid constituents was harmful to epileptics. Clinical observation had not always confirmed the validity of this view, and, struck by the contradictory nature of the results, Dr. Donath had undertaken a series of observations. He placed groups of epileptic patients on a strict milk diet and a meat diet respectively, and after six weeks he failed to detect any noteworthy effect of either regimen upon the number of attacks or the general health of the subjects. Incidentally, he found that the suppression of chloride of sodium reduced the frequency of the attacks, but at the expense of the general health, marked loss of weight and strength resulting. Alcohol in moderate quantities he found to be devoid of injurious action. The fact that meat does not appear to be injurious to epileptics suggests the desirability of reconsidering the views on which this article of food has been placed under a ban. There can be no lack of opportunities for carrying out the necessary observations, and advantage might be taken of these selfsame observations to study the influence of quantity, as well as quality, of food. Obviously, no hard-and-fast rules can be formulated in this direction, for in epilepsy, more perhaps than in other diseases, it is the patient who requires treatment rather than the disease. What is required are general rules, to be adapted to individual cases with due regard to the constitution, temperament, and habits of life of the sufferer.

The Spitting Nuisance.

At a meeting of the Budapest city council held to consider certain proposed extensions of municipal powers, it was proposed, among other things, to add the following clause with reference to expectoration in public conveyances and on the side-walks of the streets:—

> Any person who, after being cautioned by a policeman or by any officer in uniform of the corporation, expectorates on any public footwalk, or who, after being cautioned by the conductor or any fellow passenger, expectorates in, on, or from any public conveyance, shall be liable to a penalty not exceeding 200 crowns (£8 6s. 8d.).

After a considerable discussion, lasting over an hour and a half, a vote was taken, and the clause was adopted by 52 votes as against 33.

Jews and Drunkenness.

Dr. Imre Dóczy, in his work on "Alcoholism," claims that Jews under every condition of life are invariably sober. He thinks that this is not because they resist temptation, for as a race they are not particularly given to austerity, but because deep indulgence is disagreeable to them. He has made inquiries respecting the drinking habits of the Jewish people in Hungary, Russia, and England. So far the evidence he could obtain has quite substantiated this assumption. One medical man whose practice is made up in great part of Jews informed him that during the last 10 years he had only once met with a drunken Jew, and in that case the Jew, as regarded his general manner of life and attitude to the Mosaic ritual, was a "renegade." Dr. Dóczy now intends to investigate why the Jews, though exempt from alcoholism, suffer so often from nervous diseases and insanity, which diseases are to a considerable extent consequential on alcoholism.

July 20th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

"Death to the Doctor."

"*Morte al medico!*" Such is still the cry of an ignorant, infuriated populace in various provinces of Italy—a cry *motivé* by the fear that in taking the precautions dictated by the Board of Hygiene in presence of enteric disease the local medical authorities were actually courting, if not causing, the epidemic which they were striving to keep at bay. Not only in Sicily, with its chronic *analfabetismo* and superstition and its prompt recourse to personal violence, but within the Roman Province, at the much-frequented bathing resort of Nettuno, the medical officer, no less a man than the delegate of the Red Cross, Dr. Moscioni, was brutally assaulted and maltreated in the exercise of his humane mission. Called to the bedside of a boy *in articulo mortis*

from gastro-enteritis, he endeavoured to persuade the father and mother with their three daughters to accompany him to the local lazzeretto for medical examination. The women consented but the father refused. While Dr. Moscioni was expostulating with him and had even won his assent a crowd gathered before the house and intercepted the doctor, the paterfamilias aforesaid, and the hospital attendants on their way to the lazzeretto. They even tried to enter and remove the dying boy whom they regarded as a victim of the doctor's "arte malefica." But the doctor, the attendants, and the father were beforehand with them, and getting inside locked the door in their face. Savage cries of "A morte! a morte!" ("Death to him! death to him!") followed by volleys of stones, made the position desperate, when a member of the public force, knocking at the door, asked the doctor what he proposed to do. "Remain in the house till the crowd dispersed," was the answer. But the crowd was increasing every minute, and the cannonade of missiles was breaking through the *persiane* (wooden window shutters) when suddenly a man forced his way through one of them, but was stopped by the doctor's levelled revolver. By this time the boy had expired, and the delegate reinforced with a company of carabineers got the doctor out of the house and made a way for him through the crowd. But the shower of stones was redoubled, and the doctor, struck on the breast and on the head, again drew his revolver, but before he could use it got a blow in the face which stunned him and drew blood. At length a tramcar, passing opportunely, picked up the doctor and his escort and put him down at Porto d'Anzio, where he was at once attended to in the local lazzeretto. Such from Dr. Moscioni's own lips is the narrative of what befel him in the discharge of his duty in the suburbs of Rome in the year of grace 1911—the fiftieth of Italy's unity and independence! Even as I write news arrives of an outbreak at Salerno, seat of the once famous medical school, where the fishing population, infuriated at the restriction imposed on the sale of oysters, mussels, and other "frutta del mare," assailed the town hall and the sanitary office with such violence that the local carabineers had to be reinforced with troops of the line before the civic magnates, municipal and medical, could regain their homes in safety. And all this in anticipation, if not in the actual presence, of cholera—an invader which, through tardy precautions, this time last year wrought incalculable loss to Italy's best interests, financial and social. Well may the distinguished publicist Signor Luigi Lucatelli indite a jeremiad on the situation under the title of "Italia Scellerata" (Italy under a curse).

The Health of the Pope.

On July 20th the funeral service in the Sistine Chapel on the anniversary of Leo XIII.'s death was honoured by the presence of His Holiness Pius X., assisted by a distinguished representation of the Apostolic College. It was remarked that the Holy Father appeared greatly fatigued and mentally as well as physically depressed. The day, however, was one of those in which the sirocco prevails, well described as "wind without air, heat without sun, and rain without freshness." This, no doubt, explains in some measure the exhaustion of the septuagenarian pontiff; but it is observed that each successive summer he is less able to stand the subtropical heat. He misses, so say his familiars, the mountain breeze from the Rhaetian Alps, and

"The sea-pulse of the still lagoon."

Apart, however, from a recurring pharyngeal congestion and occasional attacks of gout, his health is not such as to warrant the alarming reports recently put in circulation.

Reafforestation.

The appalling destruction of sylvan growth in Canada, and the forest fires witnessed in the British Isles as far north as Perthshire, revive interest in a theme of more or less perennial interest to all Italians—the preservation of what little woodland remains to them and its renewal by plantation. At Turin, on August 28th, there will be held a "Congresso Forestale" at which the chief authorities on reafforestation will take part. The last congress of the kind was held at Bologna and evoked discussions which will have an even greater relevance in this the "Cinquantario" of the Third Italy.

July 27th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

Cholera in Constantinople.

MOST contradictory rumours as to the actual state of the epidemic of cholera in Constantinople have been circulating. These rumours still continue to agitate not a little the public mind. There are many here who firmly believe that there is no such thing as cholera in Constantinople at present. I have met with medical men who ridiculed the idea of the reappearance of the scourge, and who spoke of certain diseases simulating cholera. They thought that the alarm shown by the public and the medical authorities was quite unwarrantable. "True enough," they said, "there is cholera in the provinces spreading to an alarming degree, but it has not revisited our city this time." The medical authorities, however, from the first took a very different view. Personally, I think that quite a large number of sporadic cases have occurred in different quarters of the metropolis, and that the epidemic still exists and is spreading, though in a milder form. I myself have attended one or two fatal cases, and there was no mistake as to what the malady was; it was genuine cholera asiatica. A special commission under the presidency of Rifaat Pasha, the Minister for Foreign Affairs, met the other day in the Grand Vizierate to discuss the necessary measures to be taken in order to stem the progress of the epidemic in the provinces as well as in the capital. The scourge is occasioning great ravages, especially in the harbours along the southern shore of the Black Sea, and also in some ports of the eastern part of the Sea of Marmora. The Sanitary Office has decided to form different local commissions in various quarters of the city and outside of it, including also municipal medical men, and to subject to the necessary medical examination all the passengers coming from places contaminated by cholera, such as Smyrna and Samsoun. The municipality of Constantinople has taken a number of preventive measures. For instance, medical men will visit this week all the druggists' and chemists' shops to see that each has at ready disposal the required remedies, and that no exorbitant prices are charged for them. These physicians will also visit houses, public establishments, stables, and other such places, to ascertain that the regulations for thorough disinfection have been adhered to. It is intended severely to punish any case of negligence. In some parts of the city and in the suburbs disinfection is carried on by men employed by the municipality itself. A special council has been instituted for the purpose of attending to sanitary matters in the army. The director of the Military Medical Faculty will be a member of this council, and its president will be Dr. Witting Pasha, the chief of the Faculty of Gulhaneh at Stamboul. One or two factories along the Golden Horn have been shut by the authorities because of the very disagreeable smell they were emitting which permeated the whole neighbourhood. The disinfection of Stamboul is being carried on in an especially energetic manner. Houses, bakeries, baths, and coffee houses are visited daily. The proprietors receive certificates testifying that all the prescribed sanitary injunctions have been carried out. From Sophia, the Bulgarian capital, comes the news that cholera has made its appearance in that city. Bucharest also is said to be visited by the scourge. The Hygienic Commission for Hedjaz, which is under the presidency of the Minister of the Interior, has engaged, according to the local newspapers, five medical men, who will be sent to settle permanently in the cities of Mecca, Medina, Djeddah, &c. Eight physicians more will visit these places only during the season of pilgrimage. In Mecca two field hospitals adapted for use in hot latitudes have been erected lately. It has also been decided to construct a third hospital on the same lines in the new military barracks.

Cholera and Malaria at Bassora.

Fleeing from the scourge of cholera which is raging in a terrible fashion at Bassora, several thousand Jews have gathered at what is known as the Tomb of the Prophet Ezra, on the banks of the river Tigris, five kilometres from Bassora. There the unfortunate people spend their time in lamentation and prayer. The hygienic and sanitary conditions among them are exceedingly bad and the rate of

mortality is very high. There is no medical man on the spot and none would volunteer to visit it from the neighbouring places. The Jews suffer not only from cholera, but also from the ravages of malarial fever, which is raging there in consequence of the numerous extensive marshes. A French paper bringing this news urges the Ottoman Government to send speedy medical assistance.

Lack of Medical Men.

In the provinces of Asia Minor there are many extensive localities and districts where not a single medical man can be found. One can easily imagine, therefore, the bad sanitary conditions under which the population in those places lives, especially in time of epidemic. Thus typhoid fever was raging lately in Dersim, where people were dying by dozens, but in spite of the governor's efforts no medical man was to be had. Only after the death of a Turkish notable and of his wife did the authorities decide to send out a medical man.

July 28th.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.

—At the First Professional Examination held on July 17th, 18th, 19th, 20th, and 21st the following candidates were approved in the under-mentioned subjects:—

Chemistry and Physics.—Leslie Graham Blackmore, Middlesex Hospital; Philip Audley Brown, Brighton Municipal Technical College; George Henry Kelsey Burge, Westminster Hospital and King's College; Charles de Frias, London Hospital; David Hamilton Derry, Royal Albert Memorial College, Exeter, and St. Bartholomew's Hospital; Gerald Gordon Drummond, St. Thomas's Hospital; Cyril Bowdler Henry, Sheffield University; Charles Guy Hitchcock, London Hospital; Russell Waibancke Hodgson-Jones, Manchester University; Harold Reginald Wessen Husbands, Bristol University; Claude Stewart James Kearney, St. Bartholomew's Hospital; Sidney John Liddon Lindeman, St. Bartholomew's Hospital; Marie Gertrude Gwendoline Calvert Link, South Western Polytechnic; Guyon Lynden-Bell, King's College; John Edward Carbery Maguire, St. Bartholomew's Hospital; Rodney Honor Maingot, St. Bartholomew's Hospital; George Edwards Mullins, Birmingham University; Sinnethamby Muttiah, London Hospital; Alfred Samuel Woolaston Pearmund, Guy's Hospital; Frederick Porter-Smith, St. Thomas's Hospital; Edward Austin Prichard-Evans, University College, Cardiff; Edmund Douglas Richardson, Charing Cross Hospital; John Rowland, St. Thomas's Hospital; Percy Gunn Russell, Portsmouth Municipal College; William Henry Sarra, London Hospital; Robert Gordon Simpson, Plymouth Technical Schools; John Bevil Grenville Skelton, London Hospital; Denys Munro Smith, Bristol University; James Randolph WillianStephens, Manchester University; Arthur Alward Watkinson, Charing Cross Hospital; Frederick Langton Webster, Manchester University; Nathan Judah Wigram, Sheffield University; and William Edwin Wilson, St. Bees' School and St. Bartholomew's Hospital.

Chemistry.—Reginald George Joseph Charlesworth, Charing Cross Hospital; Cyril Gould, University College; Roy Dyson Langdale-Kelham, University College; Samuel Durham Lodge, Leeds University; George Samuel Bousfield Long, Guy's Hospital; Roy Bingley Pullin, St. Bartholomew's Hospital; Gerald Richardson Sharp, London Hospital; William Walford Salisbury Sharpe, St. Mary's Hospital; Arthur Sunderland, Charing Cross Hospital; and Percy Ward, Sheffield University.

Physics.—Basil Edward Barnes, Birmingham University; Kenneth Leslie Bates, Guy's Hospital; Hugh Stanford Bryan, London Hospital; Frank Philip Gilbert de Smidt, London Hospital; Herbert Mervyn Drake, St. Thomas's Hospital; John Eric Evans, Liverpool University; Melville St. Clair Hamilton, Charing Cross Hospital; William Norman Harrison, St. Mary's Hospital; Wilhelm Otto Holst, Middlesex Hospital; George Hubert Howe, Guy's Hospital; Henry David Llewellin Jones, St. Mary's Hospital; Theodore Louis Kan, King's College; Guy Kinneir, Tonbridge School; William Ulic Desmond Longford, St. Bartholomew's Hospital; Jose Miguel Madariaga, Buenos Ayres and St. Thomas's Hospital; Lionel Watson Moore, Guy's Hospital; Dudley George Pearce, Guy's Hospital; George Cuthbert Robinson, St. Thomas's Hospital; Henderson Whyte, London Hospital; and Ismail Zaki, University College.

Biology.—Basil Edward Barnes, Birmingham University; George Henry Kelsey Burge, Westminster Hospital and King's College; Joseph Woods Clayton, London Hospital; Dennis Reginald Curnock, Birkbeck College; Charles de Frias, London Hospital; David Hamilton Derry, Royal Albert Memorial College, Exeter, and St. Bartholomew's Hospital; David MacMurray Dickson, St. Thomas's Hospital; George Augustus Norman Dod, Birkbeck College; Herbert Mervyn Drake, St. Thomas's Hospital; David John Evans, University College, Cardiff; Cyril James Gozney Exley, University College; Gloster Tyndall Garraway, University College; Cyril Gould, University College; Russell Waibancke Hodgson-Jones, Manchester University; Wilhelm Otto Holst, Middlesex Hospital; Tudor Philip William John, University College, Cardiff; Mahmood Mahfooz, Cairo and King's College; Harry Millett, Guy's Hospital; Sinnethamby Muttiah, London Hospital; Raphael Neft, Guy's Hospital; Warre Harriott Alexander Pratt, Guy's Hospital; Thomas Francis Reason, Technical College, Swansea; Edmund Douglas Richardson, Charing Cross Hospital; Rupert Idris Rhys, University College, Cardiff; Robert Gordon Simpson, Plymouth Technical Schools; Arthur Dighton Stammers, London Hospital; James Randolph William Stephens, Manchester University; Felix Tagger, Charing Cross Hospital; Donald Carmichael Thomas, St. Thomas's Hospital; Frederick Langton Webster, Manchester University; and Henderson Whyte, London Hospital.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

—At the Preliminary Science Examination for the Licence in Dental Surgery, held on July 17th, 19th, and 21st, the following candidates were approved in the subjects mentioned:—

Chemistry and Physics.—Gerald Beaumont Ash, Polytechnic Institute; Douglas Arthur Bevis, Portsmouth Municipal College; Reginald Gordon Bradley, Birbeck College; Stanley Bremner, Liverpool University; Charles Reginald Cade, Royal Albert Memorial College, Exeter; Walter Ernest Coe, King's College; Debenham Stuart Coombs, Middlesex Hospital; William John Curtis, Middlesex Hospital; William Robert Davies, Bangor; Clifford Cedric Dixon, Leeds University; Victor Robert Dyke, Sexey's School, Bruton; John Kelvin Sawards, Liverpool University; Raymond Cecil Thomas Evetts, Polytechnic Institute; Harold Mayston Fisher, Battersea Polytechnic; Cecil William Hammond-Williams, Guy's Hospital; Charlie Lewis Hicks, East London College; Harry Austen Hutson, Polytechnic Institute; Philip Everard Jessop, Polytechnic Institute; John Arnold Johnstone, Middlesbrough High School; Leslie Grantham Lunnon, Polytechnic Institute; Harold Armstrong Metcalfe, Technical College, Sunderland; Lancelot Eric Charles Peckover, Brighton Technical College; Geraint Arthur Pennant, University College, Cardiff; Beresford Tom Richards, Derby Technical College; Stephen Archibald Rodda, Wandsworth Technical Institute; Frederick Elliott Smith, Polytechnic Institute; Herbert Leslie Smith, Brighton Technical College; Harold Treleaven, Middlesex Hospital; William Thomas Williams, Liverpool University; and John Clark Yeoman, Birmingham Technical School.

Chemistry.—Henry Hall Buckley, Royal Technical Institute, Salford; William Sutton Campbell, University College, Cardiff; Arthur Hedley Cole, Plymouth Science, Art, and Technical School; Frank Briggs Cullen, University College, Nottingham; Howard Curtis, Hartley College, Southampton; Edmund Dinsmore, Charing Cross Hospital; John Langley Garrard, Guy's Hospital; Herbert Gee, Holt Schools, Birkenhead; William Henry Churchill Gordon, Guy's Hospital; Arthur Helmuth John Miller, Charing Cross Hospital; Fairman John Ordish, Mercers' School; Ernest Bert Parry, Battersea Polytechnic.

Physics.—Frederick James Arbery, Polytechnic Institute; Harry Edward Atkins, Birkbeck College; Walter Pigott Barfoot, Brighton Municipal College; Arnin Frank Maximilian Fuoss, Wolverhampton Grammar School; Godfrey Macdona Hick, Bristol University; Bernard Isaacs, Guy's Hospital; Leonard Stanley Pilbeam, Brighton Municipal College; Frank Edwin Rudd, Norwich Technical Institute; and Arthur Herbert Virgin, Bristol University.

UNIVERSITY OF LONDON.

—At the Second Examination for Medical Degrees (Part II.), held in July, the following candidates were successful:—

Edward Smith Abraham, University of Bristol; William Daniel Arthur, University College, Cardiff; Joe Edward Ashby, Charing Cross Hospital; Leonard Barron Baird, Victoria University of Manchester; Irene Bastow, London (Royal Free Hospital) School of Medicine for Women; Robert Maitland Beath, Queen's University, Belfast; Frank Percy Bennett, St. Mary's Hospital; Geoffrey Andrew Bird, St. Thomas's Hospital; Alice Dorothea Brooks, London (Royal Free Hospital) School of Medicine for Women; Frederick Charles Sedgwick Broome, Guy's Hospital; Marion Mildred Barrow Burt, University of Birmingham; William Burt, St. Thomas's Hospital; Noel St. John Grey Dudley Buxton, University College; Aaron Simeon Cohen, University College, Cardiff; Frederick Hugh Lester Cunningham, St. Bartholomew's Hospital; John Horace Dancy, King's College; Joseph de Silva, St. Mary's Hospital; *Arthur Rawdon Carrington Doorly, St. Thomas's Hospital; Philip Oswald Ellison, St. Bartholomew's Hospital; Georg Arnold Gassman, London Hospital; Henry Little Hardy Greer, Queen's University of Belfast; Cecil Rhodes Harrison, St. Mary's Hospital; *†Henry Julyan Hoyte, King's College; *†Arthur Llewelyn Jones, McGill University, Montreal, and London Hospital; Eric Pierpoint Langley, St. Mary's Hospital; Abraham Stephen Liebson, Guy's Hospital; Oliver Cuff Link, Middlesex Hospital; Geoffrey Trevor Lougborough, St. Bartholomew's Hospital; Norman Peace Lacy Lumb, St. Thomas's Hospital; Ronald Guy Lyster, St. Bartholomew's Hospital; Arthur Griffith Maitland-Jones, London Hospital; Refna Mallet, London (Royal Free Hospital) School of Medicine for Women; *John Ernest Pearce, St. Bartholomew's Hospital; Cyril Eaton Petley, Guy's Hospital; Robert Edward Roberts, University of Liverpool; William Eric Roper Saunders, St. Bartholomew's Hospital and University of Durham; Reginald Hugh Simpson, St. Bartholomew's Hospital; Hector Smith, Charing Cross Hospital; ‡Francis Gerald Augustus Smyth, St. Bartholomew's Hospital; Henry James Drew Smythe, University of Bristol; ‡William Edward Tanner, Guy's Hospital; Charles Hamblen Thomas, St. Bartholomew's Hospital; Naomi Tribe, London (Royal Free Hospital) School of Medicine for Women; Joseph Stephen Wallace and John Glen Wardrop, University College; Thomas Burges Welch, St. Bartholomew's Hospital; Eva Muriel White, London (Royal Free Hospital) School of Medicine for Women; Henry Parks Whitworth, Guy's Hospital; William Bernard Wilson, St. Bartholomew's Hospital; Arthur Graham Winter and Herbert Gregory Winter, London Hospital; William Pridham Wippell, St. Bartholomew's Hospital; Montague Sydney

Woolf, University of Birmingham; and *†James Montague Wyatt, St. Thomas's Hospital.

* Distinguished in Anatomy. † Distinguished in Physiology.
‡ Distinguished in Pharmacology.

N.B.—This list, published for the convenience of candidates, is issued subject to its approval by the Senate.

VICTORIA UNIVERSITY OF MANCHESTER.—At examinations held recently the following candidates satisfied the examiners:—

FINAL M.B. AND CH.B. EXAMINATION.

C. E. Butterworth, Norman Duggan, A. W. Gaye, Harold Heathcote, *A. H. Holmes, *W. H. Kauntze, Mabel E. May, *Jane C. Miller, Manfred Moritz, Lovel Moss, *S. B. Radley, G. E. Sawdon, J. B. Scott, William Stirling, *J. S. B. Stopford, and G. K. Thompson.

Obstetrics.—W. H. Laslett.

Forensic Medicine and Toxicology.—O. R. Allison, Walter Barnes, R. B. Berry, A. G. Bryce, L. T. Challenor, Geoffrey Fildes, A. W. Gaye, Harold Harrison, George Jackson, J. A. Lees, P. H. Midgley, H. G. Peake, L. W. Sparrow, C. F. White, Vera N. Weizmann, and A. G. Wilkinson.

* Second-class honours.

MASTER IN SURGERY.

John Morley.

THIRD M.B. EXAMINATION.

Pharmacology and Therapeutics and Hygiene.—Allan Barrett, F. A. Bearn, J. G. Bennett, E. S. Brentnall, C. H. Crawshaw, H. N. Crossley, H. F. Hutchinson, Eugene Leahy, C. G. Lees, F. L. Newton, W. L. Nicholson, T. P. Robertson, A. V. Stocks, Ernest Talbot, Cornelius Thompson, H. W. F. Williams, and G. W. Wood.

Hygiene.—H. S. Gerrard.

FIRST M.B. EXAMINATION.

Part III., Organic Chemistry and Bio-Chemistry.—H. W. Bennett, C. P. Brentnall, J. D. Byrd, Hitchon Chadwick, Robert Chevassut, J. S. Choriton, Edgar Granger, J. B. Leigh, H. M. von Mengershausen, J. F. C. O'Meara, John Rigby, H. H. Stones, C. G. Todd, Frank Vause, Bryan Walley, and Richard Willan.

FINAL B.D.S. EXAMINATION.

A. C. W. Hutchinson.

FIRST B.D.S. EXAMINATION.

M. C. Paterson and Aquila Whitehead.

DIPLOMA IN DENTISTRY (FINAL EXAMINATION).

H. R. Ellis, Arnold Gibson, W. F. Gregory, D. M. Lawrie, C. H. Plummer, W. J. Piper, S. G. Ross, Thomas Rothwell, and A. B. Tough.

DIPLOMA IN PUBLIC HEALTH.

M. T. Ascough, Alan Boyle, E. F. S. Green, A. K. Lomas, Agnes J. Maclaren, Edith M. Marsden, C. B. Marshall, R. H. Mercer, Richard Price, W. W. Uttley, and C. F. Walker.

CERTIFICATE IN FACTORY HYGIENE.

Alan Boyle, J. D. Buchanan, Alfred Greenwood, Hugh Lawrie, J. S. Manson, W. C. Rigby, Harold Thorp, and W. W. Uttley.

CERTIFICATE IN SCHOOL HYGIENE.

John Allen, Alan Boyle, J. D. Buchanan, William J. Cox, Alex. Grant, Hugh Lawrie, Harriet McCloghry, and A. H. Norris.

Mr. Judson Sykes Bury, M.D. Lond., B.Sc. Manch. and Lond., F.R.C.P. Lond., has been appointed to the Chair of Clinical Medicine in the University of Manchester. Dr. Bury holds the position of physician to the Manchester Royal Infirmary and was formerly Bradshaw lecturer to the Royal College of Physicians. He has written an important work on clinical medicine and is joint author with the late Dr. James Ross of a treatise on "Peripheral Neuritis."

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following candidates, having passed the necessary examination, have been admitted Fellows of the College:—

R. H. Adams, L.R.C.P. & S.I.; J. W. Killen, M.B., B.Ch., Royal University; A. A. M'Connell, M.B., B.Ch. Dub.; W. F. O'Connor, M.B., B.Ch., Royal University; Miss M. J. Shire, L.R.C.P. & S.I.; and S. B. Surti, L.M. & S. Bombay.

The following candidates have passed the primary part of the Fellowship Examination:—

W. I. Adams; R. A. Austin; T. W. Conway, L.R.C.P. & S.I.; W. A. Fernando, M.R.C.P. Lond., M.R.C.S. Eng.; J. G. J. Green; W. McCready, M.B., B.Ch., Royal University; F. P. B. M'Tavish; M. Shipsey; and R. P. Weldon.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Ernst Grawitz, extraordinary professor of medicine in the University of Berlin and director of the medical department of the Charlottenburg Hospital. He was a younger brother of Professor Paul Grawitz of Greifswald and was 51 years of age. His principal publications referred to his long-continued researches on the condition of the blood in chronic lead poisoning and in many other diseases.—Dr. H. Senator, extraordinary professor of medicine in the University of Berlin.

CENTRAL MIDWIVES BOARD.—A special meeting of the Central Midwives Board was held on July 27th at Caxton House, Westminster, Sir Francis H. Champneys being in the chair. The Board considered the following charges, amongst others, against the midwives whose names are given below and ordered them to be struck off the roll. Amelia Ashton, that being in attendance as a midwife at a confinement she was guilty of negligence and misconduct in that she did not wear a dress of washable material, as required by Rule E. 1; she did not take with her the appliances and antiseptics required by Rule E. 2; she did not adopt the antiseptic precautions required by Rules E. 3 and 7; and she washed the patient in the same water and with the same flannel which she had previously used for washing the baby. Elizabeth Bell, that being in attendance as a midwife at a confinement, the patient suffering from abdominal swelling and tenderness on March 27th, she did not until 10 P.M. on March 28th explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner, as required by Rule E. 19 (4) of the rules then in force. Harriet Blowers, that when attending her patients she did not wear a dress of washable material as required by Rule E. 1; that she persistently neglected to provide herself with the appliances and antiseptics required by Rule E. 2; and that she did not take the temperature of her patient, being unable to use a clinical thermometer. Mary Denham, that having been enrolled in virtue of having been in *bonâ fide* practice as a midwife for a year before the passing of the Midwives Act, 1902, and never having passed the examination of the Central Midwives Board, or any other examination in midwifery, she had nevertheless falsely, and in breach of Rule E. 26 of the rules in force before July 1st, 1911, represented herself on her door-plate, and by means of cards and advertisements, as (*a*) "Certificated Midwife by Examination of the Central Board"; (*b*) "Certificated by Examination Central Midwife Board"; and (*c*) "Certificated Midwife by Examination of Central Board." Ann Fox, that being in attendance as a midwife at a confinement, the mother being ill and suffering from retention of urine, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner, as required by Rule E. 18 of the rules then in force. Harriet Growcott, that she was uncleanly in her person, clothing, and appliances; that she did not take the temperature of her patients, being unable to use a clinical thermometer; and that she did not keep her register of cases as required by Rule E. 22 of the rules in force before July 1st, 1911. Caroline Amelia Hutt, that being in attendance as a midwife at a confinement, the child suffering from inflammation of the eyes, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner, as required by Rule E. 19 (5) of the rules then in force. Mary Ann Margaret Hyde, that she had on several occasions employed an uncertified person as her substitute, contrary to the provisions of Section 1 (4) of the Midwives Act, 1902. Sarah Jane Leach, that being in attendance as a midwife at a confinement, she failed to adopt the antiseptic precautions required by Rules E. 3 and 7; and that she failed to give proper attention to the comfort and cleanliness of the child during the puerperium, as required by Rule E. 11. Mary Ann Pickering, that at the Birmingham Assizes on March 21st, 1911, she was convicted of counselling and procuring one Louisa Hillier to attempt to procure abortion, and was thereupon sentenced to 18 months' imprisonment with hard labour. Hannah Rhodes, that she cut the patient's perineum with a pair of household scissors without disinfection; she removed the afterbirth by pulling on the cord until it broke and then by inserting her hand into the patient's uterus; and she did not take the patient's temperature at any time. Ann Sant, that being in attendance as a midwife at a confinement, she

did not attend to the comfort of the patient, nor did she remove soiled and blood-stained linen from her neighbourhood, as required by Rule E. 10. Sarah Stanley, that being in attendance as a midwife at a confinement, the patient being ill on March 30th, suffering from headache and severe abdominal pain, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner, as required by Rule E. 19 (4) of the rules then in force. A registered medical practitioner having been sent for on March 31st, she failed to notify the fact to the local supervising authority as required by Rule E. 20 of the rules then in force. Ellen Upton, that she was uncleanly in her person, clothing, and house; that when attending a patient she did not wear a dress of washable material as required by Rule E. 1; and that she did not possess the appliances or antiseptics required by Rule E. 2. The following midwives were censured after charges against them had been considered: Elizabeth Jones and Annie Walker.

BELFAST HOSPITAL FOR DISEASES OF THE SKIN.—At the annual meeting of this charity, held on July 29th, it was reported that during the past year 915 patients had been treated, and that there was to the credit of the hospital a balance of £233 12*s.* 3*d.* The buildings and the equipment of the hospital are in a thoroughly satisfactory condition, and the latest methods of treatment are in use.

Dr. A. Philp Mitchell, clinical assistant at the Royal Infirmary, Edinburgh, has been awarded a research scholarship (value £150) by the Council of the British Medical Association.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The National Insurance Bill.

On Monday, July 31st, the House of Commons resumed discussion of the National Insurance Bill in committee. An interesting debate on the position of hospitals under the Bill arose in the discussion on Clause 12. This clause lays down the manner in which contributors who are inmates of hospitals and similar institutions are to be dealt with. The first subsection runs as follows:—"No payment shall be made in respect of sickness, disablement, or maternity benefit to any insured person during any period that he is an inmate of any workhouse, hospital, asylum, or infirmary supported by any public authority, or out of any public funds, or by a charity, or sanatorium, or similar institutions established under this part of the Bill."

Mr. POLLOCK was able to raise the general question of the relation of hospitals to the Bill by an amendment proposing to leave out the words "or by a charity." The main considerations on the subject were set forth in speeches delivered by Mr. AUSTEN CHAMBERLAIN and Mr. LLOYD GEORGE.

Mr. AUSTEN CHAMBERLAIN said that at a previous stage the Chancellor of the Exchequer had stated that in approaching this question honourable Members ought not to be discouraged by the experience of Germany in regard to hospitals under a system of National Insurance. He was under the impression that the great proportion of German hospitals were State-aided institutions only dependent on private subscriptions and donations. He did not think that the example of Germany gave this country any guidance as to what would happen here. Our voluntary hospital system was old-established, of slow growth, and largely encouraged in recent years by Saturday and Sunday collections. It must be clear to everyone that institutions which had largely been dependent on voluntary subscriptions of employers and workmen could hardly expect equal sums in future when the State stepped in and taxed workmen and employers to provide that which the workmen had previously had to provide for themselves. Where the collections had been largest honourable Members might expect that the hospitals would lose most. He had received information from a meeting which represented 44 hospitals in the midland counties and they calculated that 50 per cent. of their entire income was liable to be adversely affected by the Bill, and in the case of individual hospitals the proportion rose to 75, 80, or even 90 per cent. In these circumstances it was not surprising that hospital managers viewed the provisions of this Bill with something like dismay. He wanted to remind the committee that there was another function fulfilled by these institutions, and that was the training of the whole medical profession of the country. The members of that profession were dependent upon the experience which they got in the hospitals for the progress of medical and surgical science. If anything went wrong with the hospitals the whole community would be losers. He would propose that where the insured person became an inmate of these institutions supported by voluntary contributions or partly by voluntary contributions—if he had no dependents—all the money which was due to him as sick pay should go towards his maintenance in the hospital. If he had dependents the money should be divided between the hospital and the dependent. The Chancellor of the Exchequer had reserved a large sum for treatment in sanatorium for persons suffering from tuberculosis. He suggested that the right honourable gentleman should allot some of that money to hospitals where efficiency had been proved to some central authority. If that were not possible, then for each man sent for hospital treatment there should be some payment from the National Fund. The right honourable gentleman had spoken as if the hospitals would be relieved of much of their work, but many hospital authorities did not share that view and thought that under the Bill they would have not fewer but more people sent to the hospitals. He saw that the Chancellor of the Exchequer had an amendment to provide for the payment under certain circumstances to hospitals from the sickness benefit of persons with no dependents, but it was wholly inadequate.

Mr. LLOYD GEORGE, in the course of his reply, said that it was quite obvious that no system which had for its object the promotion of national health ought to do anything which would impair the efficiency of the great hospitals of this country, and he thought he would be able to satisfy the committee that there was no real justification for the fears entertained by many of those engaged in hospital work with regard to the Bill. By the amendments which would be proposed he thought the faintest shadow of fear ought to be removed. He would give reasons to show that the fear had no foundation in fact. The first thing that would happen under the Bill would be that hundreds of thousands of out-patients would be transferred from the charge of the hospitals to the charge of the Fund. Mr. SYDNEY HOLLAND had told him that the London Hospital was not undertaking the work of medical officers of workhouse infirmaries or of parish doctors. On the other hand, it was not undertaking the work of treating those who were well enough off to pay medical men themselves. It was the class in between that was treated, and this was the class that would be dealt with by the Bill. That would relieve the hospitals of a very heavy burden now cast upon them. If these people did prefer to go to the hospital, he did think that the hospitals ought to have a right to impose some charge upon them. His second point was this: the Bill took away the heavy charge for the treatment of tuberculosis. The charge for this at present was out of all proportion to the number of persons treated. The hospitals were not looking at their diminished charges in this respect. He did not see why the workman should contribute less to hospitals in the future than he had done in the past. A man who at present was paying 6*d.* or 8*d.* to his Friendly Society would pay 4*d.* in the future for his benefits. There was no reason why the man who was now paying an extra penny towards his hospital should not pay the same sum, or more, in the future. He did not think that there was much in the contention that the employers' subscriptions would be diminished to an enormous extent. The diminution of employers' contributions had not taken place in consequence of the passing of the Workmen's Compensation Act, and there was no danger that they would not discharge what they regarded as their fair obligation to their workmen in the future. As to new sources of revenue, he did not rule out the suggestion of Mr. A. CHAMBERLAIN that there might be some sort of committee which would dispense a sum of money in such a way that the hospitals should not be left out. Then the approved societies had the power to make subscriptions, and, he thought, that ought to extend also to the Local Health Committees. There was no power for a compulsory levy, but if the hospital funds were going down and their usefulness being threatened, he thought it would be in the interest of the societies to subscribe. It was said that these societies did not subscribe very readily. Perhaps honourable Members should not depend too much on the volume of their subscriptions. He attached greater importance to the amendment as to the payment of sick pay of those who had no dependents to the hospitals. It meant in the case of the vast majority of bachelors that 10*s.* a week would be paid for the first three months. That was a perfectly new source of revenue. He thought those in charge of hospitals were exaggerating the danger. They were overlooking the diminution in charges falling upon them, and at the same time they were overlooking the new sources of revenue. He thought the hospitals would be much better off in the future than in the past, and everything would be gained by exciting a new interest in national health.

Various views were expressed in the course of the subsequent debate. Mr. H. LAWSON considered that the Chancellor of the Exchequer had very greatly underrated the hospital grievance. He thought that the increased care which was to be taken of the health of the people made it certain that the expenses thrown upon hospitals would be increased, and no means were provided by the Bill to meet the increased expense. It should be made obligatory on the Health Committee to pay for work done in hospitals. Mr. J. SAMUEL objected to

deducting money from benefits for the maintenance of hospitals which were supported by the subscriptions of working men. Mr. CASSEL, on the other hand, contemplated some arrangement whereby at least a part of the sick pay went to the hospital. Mr. LANSBURY acknowledged the work done by the voluntary hospitals, but said that public money ought not to be granted to private institutions without an accompanying public control. Mr. LYTTELTON expressed doubts as to whether employers would contribute as much to hospitals as they did now, whilst in his view the demands on them would be increased. He also contemplated an arrangement whereby some part of the sick benefit should be diverted to the hospital. Mr. O'GRADY took the view of the Chancellor of the Exchequer that working-men would not cut off their contributions to hospitals if the funds fell off to a dangerous extent. Mr. HARWOOD was convinced that the Government would have to face the problem of placing the hospitals on a sound national basis. Sir ROBERT FINLAY remarked that it was widely held by those concerned that the Bill as it stood would prejudicially affect the medical and scientific work of hospitals. Sir RUFUS ISAACS, the Attorney-General, said that the words "or by a charity" left it in doubt whether institutions supported by public subscriptions would be included. Accordingly he would propose to add the words "or by voluntary subscriptions."

The amendment of Mr. POLLOCK was then withdrawn, and the words suggested by the Attorney-General were inserted.

An amendment was then proposed by Mr. AUSTEN CHAMBERLAIN to the effect that the sickness benefit of an insured person should "if he be an inmate or patient of a hospital or institution supported by voluntary subscriptions be divided between that hospital or institution and his dependents (if any) in such proportions as the Local Health Committee may determine, and in all other cases shall be." This amendment was criticised by several Members, Dr. ADDISON remarking that money ought not to be taken from dependents for the sake of hospitals. He agreed that hospitals ought to be paid for the services rendered to sick persons, but the payment should not come out of the sick fund. The Attorney-General, whilst not prepared to accept Mr. CHAMBERLAIN'S amendment, suggested that some arrangement might be arrived at on the Chancellor's amendment, which would come on later. The amendment was accordingly withdrawn.

On Tuesday an amendment proposed by Mr. LLOYD GEORGE was accepted by which a part or the whole of the sickness benefit falling to an insured person who was a member of an approved society and the inmate of a hospital might under a special agreement be devoted towards his maintenance in the hospital. Clause 12 was agreed to.

On Clause 13 a most important amendment, placing medical benefit under the administration of Local Health Committees instead of approved societies, was carried. The clause deals with the benefits to be administered by approved societies or the Local Health Committees. The first subsection runs: "Sickness benefit, disablement benefit, and maternity benefit, and subject to the provisions of the next succeeding section, medical benefit shall be administered in the case of insured persons who are members of an approved society, by and through the society, and in other cases by and through the Local Health Committees; sanatorium benefit shall in all cases be administered by and through Local Health Committees."

Dr. ADDISON proposed an amendment to transfer the administration of medical benefits to the Local Health Committees. He spoke for 40 minutes in a pretty well-filled House which gave him a sympathetic hearing. The speech was closely reasoned. In the first place, he pointed out that the effect of the Bill on the practice of medicine and surgery in the whole country would be profound. The ultimate effect of the Bill upon public health and the welfare of the next generation would depend upon the machinery provided in it for administering medical benefits. The honourable Member considered the conditions under which medical benefit would be administered under the auspices of approved societies in a given area. There would be no common growth and development and no definite mode of coöperation between them. Club practice would be perpetuated. Dr. ADDISON explained to the House the deplorable results of this system. The remuneration to the medical man was often so inadequate that it was impossible for him to give to individual patients the detailed attention which was so necessary. It would be a highly dangerous experiment to apply to practically the whole of the population such a system as hitherto had been accompanied by constant striving. There was something in club practice against the ideals of the practice of medical men, and the great majority of them in the country had declared that they could not work on club lines under this Bill. Club practice was against the development of the best treatment or the adoption of preventive measures. Dr. ADDISON then dealt with the undesirability of underpaid professional work. If the medical men were kept under Friendly Society control, and that were extended by the Bill, there was no doubt that there would be a serious depreciation in the standard of the medical profession at the whole success of the Bill depended upon the efficiency of the medical services. Dr. ADDISON, in conclusion, pointed out that medical benefit could be much more efficiently organised and joined into the public health service under the *régime* of Local Health Committees. Through the Local Health Committees it would be possible to get machinery which could be worked in connexion with the prevention of disease.

Many Members supported the amendment. Mr. H. W. FORSTER spoke from the front Opposition bench in favour of it. He stated that the Bill would be unworkable if the coöperation of the medical profession could not be secured. "We want the best medical attendance," said Mr. FORSTER," "we want uniformity of practice and administration. We shall get that to a far greater extent by placing medical benefit under the Local Health Committees than under the provided societies." Mr. GLYN-JONES, who approaches the question largely from the point of view of pharmacists, gave the amendment his support. Sir PHILIP MAGNUS emphasised the unanimity of the medical profession in asking for the amendment. Dr. ESMONDE, who brings a large amount of personal experience to the solution of such problems, gave the amendment warm support. He stated that it was unquestionable that the way in which club patients had had to be treated was not the way in which they should be treated if the Bill was to be a success. He also emphasised the hostility of the medical profession to Friendly Society control. Mr. GIBBS also warmly favoured Dr. ADDISON'S proposal, and remarked on the desirability of making the medical profession more attractive for the best men. A plea upon behalf of the Friendly Societies was entered by Mr. JOHN WARD, who thought that the services rendered by them had not been recognised in the debate. Mr. C. HARMSWORTH also said that scant justice had been done in the debate to the work accomplished by them. He asked that the medical institutes of those societies should be safeguarded. Sir HENRY CRAIK, who speaks for the medical graduates of Glasgow and Aberdeen Universities, gave a whole-hearted support to the amendment. Mr. BARNES, an important member of the Labour party, also argued in favour of it.

Late in the evening the amendment had the warm advocacy of a member of the medical profession on the opposition benches—Dr. A. P. HILLIER. Dr. ADDISON had spoken from the Ministerialist benches and Dr. ESMONDE from the Nationalist. The combination of these three Members, differing in their general political views, emphasised the feelings entertained by the profession towards Friendly Society control. There were some dissenting voices when Dr. HILLIER remarked that there had been no unreasonable hostility of the medical profession to the Bill. The amendment, he said, would be equitable both to medical men and the Friendly Societies. The Local Health Societies would be the strongest bodies to obtain uniformity of practice, and certainly stronger than the approved societies to deal drastically with the subject of malingering.

Mr. LLOYD GEORGE refrained from intimating the attitude of the Government to the amendment until he had heard the representative expression of views from all quarters of the House. In stating that the Government had decided to leave the matter to the free vote of the House unfettered by putting on the party whips for the division, the Chancellor of the Exchequer said that the amendment affected neither the finance nor the fabric of the Bill. Personally, he had always felt that it would be far better that the arrangements for medical benefit should be in the hands of the Local Health Committees. This proposal, however, could not be carried unless there was a practical unanimity on both sides of the House. The debate showed that there was an overwhelming body of opinion in favour of making the change suggested by Dr. ADDISON. The right honourable gentleman went on to discuss the work done by the Friendly Societies, which in the past had provided medical benefit for the working classes who were not prepared to resort to the parish. He had no doubt that there were cases where the payments to medical men had been very inadequate. However, the medical profession was to some extent to blame in the way in which Friendly Society appointments had been competed for. However, he appealed to those who represented the societies to recognise that the conditions had changed. The expense of medical attendance was going up in the future, as there was to be a higher standard. Drugs also were going to cost more. For these reasons the Friendly Societies should recognise the changed conditions and transfer their benefits to the Local Health Committees at the outset. The Chancellor of the Exchequer pointed out, in conclusion, that the amendment would require some adjustment as to the payments to be made by the approved societies to the Local Health Committees. His own preference was for a mutual arrangement subject to an appeal in cases of disagreement to an impartial body—say the Insurance Commissioners.

The amendment was finally carried by 387 votes to 15, the announcement of the figures being received with loud cheers.

Clause 13 as amended was agreed to.

The Administration of Medical Benefits.

On Wednesday the House of Commons took up consideration of Clause 14 of the National Insurance Bill, which deals with the administration of medical benefit. Several very important amendments were made in its terms. Sir PHILIP MAGNUS moved an amendment confining the medical benefit to insured persons whose income from all sources did not exceed £104 a year. He and other speakers pointed out that this income limit was demanded by a unanimous medical profession. Mr. LLOYD GEORGE took a hostile attitude to the amendment, declaring that a two-pounds a week income-limit

was artificial and would operate with quite different incidence in town and country. He expressed his preference for Dr. ADDISON'S plan to leave the fixing of the income-limit to the Local Health Committees, and to accumulate the medical benefits of persons with superior incomes as a fund which in the first resort would be liable to meet fees due by them for medical attendance. Sir PHILIP MAGNUS'S amendment was negatived without a division. An amendment by the Chancellor of the Exchequer to secure freedom of choice of medical men to insured persons was accepted. Dr. ADDISON'S proposal was then carried by 279 votes to 41. An amendment submitted by Mr. CECIL HARMSWORTH to safeguard the existing medical institutes of Friendly Societies was also added to the subsection. A proposal made by Mr. GLYN JONES to have a free choice of chemists and druggists was also accepted. It will be seen therefore that the clause has been profoundly altered and extended.

A comparison of the text of the first subsection of Clause 14 in its unamended form with the text of the subsection after it emerged from the discussion in committee will reveal the extent of the changes made.

The subsection as unamended ran: "Every approved society and Local Health Committee shall for the purpose of administering medical benefit make arrangements with duly qualified medical practitioners for insured persons to receive attendance and treatment to the satisfaction of the Insurance Commissioners from such practitioners."

The subsection in the form which it now takes after the incorporation of the various amendments is as follows:—

Every Local Health Committee shall for the purpose of administering medical benefit make arrangements with duly qualified medical practitioners in accordance with regulations made by the Insurance Commissioners.

The regulations made by the Insurance Commissioners shall provide for the arrangements made being subject to the approval of the Insurance Commissioners and being such as to secure that insured persons shall, save as hereinafter provided, receive adequate medical attendance and treatment from the medical practitioners with whom arrangements are so made, and shall require the adoption by every Local Health Committee of such system as will secure:—

(a) The preparation and publication of lists of medical practitioners who have agreed to attend and treat insured persons whose medical benefit is administered by the committee within the area to which the list relates;

(b) A right on the part of any duly qualified medical practitioner who is desirous of being included in any such list as aforesaid of being so included, but where the Insurance Commissioners, after such inquiry as may be prescribed, are satisfied that his inclusion or continuance in the list would be prejudicial to the efficiency of the medical service of the insured they may remove his name from the list;

(c) A right on the part of any insured person of selecting at such period as may be prescribed from the appropriate list the practitioner by whom he wishes to be attended and treated, and, subject to the consent of the practitioner so selected, of being attended and treated by him;

(d) The distribution amongst and, so far as practicable, under arrangements made by, the several practitioners whose names are on the lists of the insured persons who after due notice have failed to make any selection, or who have been refused by the practitioner whom they have selected;

Provided that if the Insurance Commissioners are satisfied after inquiry that the practitioners included in any list are not such as to secure an adequate medical service in any area, they may dispense with the necessity of the adoption of such system as aforesaid as respects that area, and authorise the committee to make such other arrangements as the Commissioners may approve. (Mr. LLOYD GEORGE'S amendment.) The regulations made by the Insurance Commissioners shall authorise the Local Health Committee by which medical benefit is administered to require any persons whose income exceeds a limit to be fixed by them, and to allow any other persons, in lieu of receiving medical benefit under such arrangements as aforesaid, to make their own arrangements for receiving medical attendance and treatment (including medicines and appliances), and in such case the Committee shall, subject to the regulations, contribute from the funds out of which medical benefit is payable towards the cost of medical attendance and treatment (including medicines and appliances) for such persons sums not exceeding in the aggregate the amounts which the Committee would otherwise have expended in providing medical benefit for them. (Dr. ADDISON'S amendment.) The regulations may provide that, in the case of persons who are receiving medical attendance and treatment under any system or through any organisation existing at the time of the passing of this Act approved by the Local Health Committee and the Insurance Commissioners, such medical attendance and treatment may be treated as, or as part of, their medical benefit under this part of this Act, and may provide for the Committee contributing towards the expenses thereof the whole or any part of the sums which would be contributed in the case of persons who have made their own arrangements as aforesaid. (Mr. HARMSWORTH'S amendment.)

University of Wales (No. 2) Bill.

The University of Wales (No. 2) Bill has received a second reading in the House of Commons.

Poisons and Pharmacy (Ireland) Bill.

Captain CRAIG has introduced in the House of Commons a Bill "to make certain alterations with reference to the carrying on of the business of pharmaceutical chemists and chemists and druggists in Ireland." It was read a first time.

HOUSE OF COMMONS.

WEDNESDAY, JULY 26TH.

Milk and Tuberculosis.

Mr. C. BATHURST asked the President of the Local Government Board upon what day he proposed to introduce the Milk and Dairies Bill; and whether any of the provisions of such Bill had been modified in consequence of the recently issued final report of the Royal Commission on Human and Animal Tuberculosis.—Mr. BURNS replied: Due notice will be given of the introduction of the Bill. I am considering what modifications in the Bill may be necessary by reason of the report of the Royal Commission.

Mr. BATHURST: May I ask whether, in view of the uncertainty and alarm both amongst the farming community and the consuming public, the right honourable gentleman will take steps to accelerate the introduction of his Bill?—Mr. BURNS: I do not agree as to the proportion of alarm suggested. It is mainly to consider the matters, which I see are mentioned in the next question of the honourable gentleman, that I have not introduced the Bill up to the present moment.

Mr. BATHURST further asked whether the right honourable gentleman was conversant with the experiments which had been recently conducted on human beings in Germany in order to test the extent of the risk resulting from the human consumption of milk obtained from cows infected with tuberculosis of the udder, and with the report published last year by the Imperial Health Office of Germany based upon such experiments; whether, in the light of that report, he was advised by the medical experts of his department that the drinking of, as distinct from the inoculation with, cows' milk containing tubercle bacilli was calculated seriously to endanger human health even in the case of children; and whether, in view of the absence of deleterious effects resulting from most of the feeding experiments conducted by the Royal Commission on Human and Animal Tuberculosis, he would, in order to allay undue alarm upon this subject, cause further scientific investigations to be made before taking drastic measures in respect of the national milk-supply on a possibly false hypothesis.—Mr. BURNS answered: The experiments referred to were merely observations on the medical history of 360 persons (151 children) who were stated to have consumed tuberculous milk. My advisers agree with the finding of the Royal Commission on Tuberculosis to the effect that "measures for securing the prevention of ingestion of living bovine tubercle bacilli with milk would greatly reduce the number of cases of abdominal and cervical gland tuberculosis in children," and there is nothing in the facts contained in the German report referred to in the question which is incompatible with this conclusion. It would be superfluous, in view of the many years' work of the Royal Commission, to cause further scientific investigation to be made on the points which they have definitely settled.

Mr. BATHURST: Is it not universally admitted amongst the medical profession that this disease is due more to a predisposition caused through insufficiency of milk than to the presence of bovine germs in the milk itself?—Mr. BURNS: I am aware that that view is held by some members of the profession who are entitled to respect, but there are others equally entitled to respect who hold the very opposite view.

THURSDAY, JULY 27TH.

Plague in India.

Mr. MORRELL asked the Under Secretary of State for India whether his attention had been called to the statement that in the first week of July there were 1848 deaths from plague in India; whether this rate of mortality was unusually high for the time of year; and whether the Government was taking exceptional measures for dealing with the outbreak.—Mr. MONTAGU replied: Having regard to the fact that plague, unhappily, has been very prevalent this year, the mortality reported for the first week in July cannot be regarded as exceptionally high from a seasonal point of view. It marks a great decrease on the June figures and is much below the mortality in the corresponding week of 1907, a year in which plague was similarly prevalent. As I informed the House yesterday, the local governments are fully alive to the responsibilities resting upon them in the matter and are endeavouring to arrest the disease by the use of all means within their power.

Experiments on Living Animals.

Mr. G. GREENWOOD asked the Secretary of State for the Home Department whether he was aware that the total number of experiments on living animals, as set forth in the return for the year 1910, had increased from 86,277 in 1909 to 95,731 in 1910, showing an increase of 9454; how many inspectors there now were under the Cruelty to Animals Act, 1876; and whether he could say how many of these 95,731 experiments were actually seen by such inspectors.—Mr. CHURCHILL replied: Yes, sir, but to prevent misapprehension it may be well to point out that of the increase of 9454, 8403 were experiments of the nature of simple inoculations, hypodermic injections, and similar proceedings. There are two inspectors under the Act; 129 experiments were actually seen by them, and a very large number of animals under observation after experiment were examined.

Mr. GREENWOOD further asked the right honourable gentleman whether the statement that the irregularities mentioned in the Return of Experiments on Living Animals during the year 1910 were the only irregularities that had occurred during that year was based on unchecked information supplied by licensed vivisectors themselves; or whether any, and if so what, means were taken to check such information and to detect and report any irregularities which might not be reported voluntarily by the persons guilty of them.—Mr. CHURCHILL answered: The statement that only two irregularities occurred in 1910 was intended to mean that those were the only ones which are known

to have occurred. The statement is founded not only on the returns and other information which licensees are required to furnish, but also on numerous inspections, on examination of laboratory books by the inspectors, and on information given to them by the heads of laboratories and others.

Mr. GREENWOOD: Is it the case, then, that these irregularities were discovered by inspection of 129 experiments out of a total of 95,000?—Mr. CHURCHILL: Inspections of this kind are by sample.

National Insurance Topics.

Lord CHARLES BERESFORD asked the Chancellor of the Exchequer whether it was intended under the National Insurance Bill to allow Friendly Societies to open dispensaries, and whether all dispensing would be done by qualified pharmacists.—Mr. HOBHOUSE (on behalf of Mr. LLOYD GEORGE) said in reply: It is desirable to secure the best system for the supply of medicines. Consequently no one method of supply should be expressly excluded. All dispensing will be done by qualified persons.

Sir WALTER MENZIES asked the right honourable gentleman whether he proposed to make any provision in the National Insurance Bill, or the regulations to be made thereunder, which would enable insured persons who conscientiously objected to ordinary or orthodox medical treatment to obtain such other form of medical treatment as they might desire.—Mr. HOBHOUSE wrote in reply: Under the amendments put on the paper by my right honourable friend any person will be able to obtain medical treatment from any duly qualified medical man, however unorthodox his methods.

MONDAY, JULY 31ST.

The Nutritive Value of Flour.

Mr. C. BATHURST asked the President of the Local Government Board when his department proposed to publish the long-promised report upon the nutritive value of flour, as at present manufactured, and other foods.—Mr. BURNS said in reply: The report is now in an advanced stage of preparation and I hope it may be issued very shortly.

Death-rate of Nyassaland Natives in the Transvaal.

Mr. FELL asked the Secretary of State for the Colonies whether his attention had been called to the death-rate among the natives employed in the Transvaal mines in place of the repatriated Chinese and to the death-rate among such of the natives as had been recruited from British Nyassaland, Nyasa, and Zambesia; and whether he proposed to take any steps to prevent such recruiting from colonies under the Colonial Office.—Mr. L. HARCOURT answered: The mortality rate amongst the Nyassaland natives in the Transvaal is causing me great concern, and I am in active communication with the Union Government, who hope, however, to see a material improvement in the course of a few months owing to the restriction of tropical natives to mines where proper change houses exist. Further measures may be required, but if they fail the stoppage of emigration may be necessary.

Friendly Societies and Medical Practitioners.

Lord CHARLES BERESFORD asked the Chancellor of the Exchequer, with reference to Clause 14 of the National Insurance Bill, whether Friendly Societies were to have control of the medical practitioners.—Mr. LLOYD GEORGE replied: The answer is in the negative.

TUESDAY, AUGUST 1ST.

Tuberculosis and Butter.

Captain FABER asked the President of the Local Government Board whether the bacilli of tubercle had been found in butter.—Mr. BURNS replied: Tubercle bacilli are occasionally to be found in butter, when they had been present in the milk from which the butter was made. The risk to health from such butter may be regarded as relatively slight.

A Claim to Cure Consumption.

Mr. C. BATHURST asked the President of the Local Government Board whether Dr. Kaye, the medical officer of the West Riding County Council, had, at his request, investigated the claim made by Mr. A. Bryant, of Thornton, Bradford, that he had cured and was curing consumption in an advanced stage of the disease by means of gases which were given out by the maggots infesting putrifying meat; and, if so, with what result.—Mr. BURNS said in reply: I have not made any such request to Dr. Kaye.

"Botanic System of Medicine" and National Insurance.

Mr. JAMES PARKER asked the Chancellor of the Exchequer whether a person who was practising "the botanic system of medicine" would be entitled to render medical aid under the National Insurance Bill.—Mr. ILLINGWORTH (on behalf of Mr. LLOYD GEORGE), in reply, said: Such a person would not be a duly qualified medical practitioner unless he has passed the examination required by the Medical Acts and been registered under those Acts.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, J. B., ET FILS, Paris.

La Pratique des Maladies des Enfants, Diagnostic et Thérapeutique. Publié en Fascicules. VII. Chirurgie des Enfants: Appareils Digestif, Cardiaque et Pulmonaire, Organes Génito-Urinaires, Organes des Sens. Par A. Broca, Frœlich, A. Mouchet, Guisez et F. Terrien. Price, paper, Fr.14; boards, Fr.15.50.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.

The Problem of Pulmonary Tuberculosis considered from the Standpoint of Disposition. By William Bulloch, M.D., and Major Greenwood, jun. (Reprinted from the "Proceedings of the Royal Society of Medicine," May, 1911.) Price not stated.

The Dental Directory, 1911. Price 2s. 6d. net.

CHURCHILL, J. AND A., London.

Saint Thomas's Hospital Reports. New Series. Edited by Dr. H. G. Turney and Mr. W. H. Battle. Price 8s. 6d. net.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.

Oxford Medical Publications. Emergencies of General Practice By Percy Sargent, M.B., B.C. Cantab., F.R.C.S., and Alfred E. Russell, M.D., B.S. Lond., F.R.C.P. Second edition. Price 15s. net.

KING, P. S., AND SON, Orchard House, Westminster, London.

British Rural Life and Labour. By Francis George Heath, Author of "The English Peasantry," "The 'Romance' of Peasant Life," &c. Price 10s. 6d. net.

Public Health and National Insurance. By H. Meredith Richards, M.D., Medical Officer of Health and School Medical Officer, Croydon. Price 6d. net.

KÜHTMANN, GERHARD, VERLAG VON, Dresden.

Die Staatliche Lymphanstalt und die Gewinnung tierischer Schutzpockenlymphe in Dresden. Für die Internationale Hygiene-Ausstellung Dresden, 1911, im Auftrage des Königlichen Ministeriums des Innern verfasst von Dr. Th. Chalybäus, Vorstand der Lymphanstalt. Price M.3.

LEWIS, H. K., 136, Gower-street, London.

The New Sydenham Society. Retrospective Memoranda. By Sir Jonathan Hutchinson, F.R.S. Subject Index and Index of Names. Compiled by Charles R. Hewitt, Librarian to the Royal Society of Medicine. Price not stated.

LONGMANS, GREEN, AND CO., London, New York, Bombay, and Calcutta.

The Life and Letters of Sir John Hall, M.D., K.C.B., F.R.C.S. By S. M. Mitra, Author of "Indian Problems," "Hindupore," &c. With an Introduction by Rear-Admiral Sir R. Massie Blomfield, K.C.M.G. Price 16s. net.

MALOINE, A., Paris.

Sémiologie Réelle des Sections totales des Nerfs mixtes périphériques. Considérations concernant l'Étude des Troubles des Sensibilités, les Modifications des Réactions Vaso-motrices et Sudorales, les Altérations trophiques ostéo-articulaires et cutanées. Par Henri Claude, Professeur Agrégé, Médecin de l'Hôpital Saint-Antoine, et Stephen Chauvet, Interne des Hôpitaux de Paris. Price Fr.4.

MURRAY, JOHN, London.

National Health Insurance. The Parliamentary Bill Examined and Compared with the German Scheme. By Ernest J. Schuster, LL.D. (Reprinted from the "Journal of Comparative Legislation.") Price 6d. net.

NATIONAL UNION OF CONSERVATIVE AND CONSTITUTIONAL ASSOCIATIONS AND UNIONIST SOCIAL INSURANCE COMMITTEE, St. Stephen's House, Westminster, London, S.W.

The National Insurance Bill Summarised. By L. Worthington Evans, M.P. Price 1d.

NORTH, JOHN, "Dairy World" Office, 98, Fetter-lane, London, E.C.

Milk Testing. A Simple Practical Handbook for Dairy Farmers, Estate Agents, Creamery Managers, Milk Distributors, and Consumers. By C. W. Walker-Tisdale, F.C.S., N.D.D., Member of the Board of Directors and General Manager of the Wensleydale Pure Milk Society, Limited, Northallerton. Revised edition. Price 1s. net, by post 1s. 2d.

OLIVER AND BOYD, Tweeddale-court, Edinburgh, and 33, Paternoster-row, London, E.C.

Pleurisy, including Empyema and Bronchiectatic Conditions. By Alex. James, M.D., F.R.C.P.E., Consulting Physician to the Edinburgh Royal Infirmary and to the Edinburgh City Hospital. Price 6s. 6d. net.

ROUTLEDGE, GEORGE, AND SONS, LIMITED, London. (DUTTON, E. P., AND CO., New York.)

Talks about Ourselves. Simple Teaching in Hygiene and Physiology. By Kathleen Falmouth (Viscountess Falmouth). With a Frontispiece by T. C. Gotch. Price 1s. 6d. net.

SAUNDERS (W. B.) COMPANY, Philadelphia and London.

What to Eat and Why. By G. Carroll Smith, M.D., Boston, Mass. Price, cloth, 12s. net.

The Care of the Baby. A Manual for Mothers and Nurses. By J. P. Crozer Griffith, M.D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania. Fifth edition, thoroughly revised. Price 6s. 6d. net.

TEMPEST, W., Dundalgan Press, Dublin and Dundalk.

The Irish Motor Directory and Motor Annual, 1911-12. A Reference Hand-book for Motorists. (Entered at Stationers' Hall.) Edited by Henry G. Tempest. Price 2s. 6d., post free 2s. 9d.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

CHAPMAN, HAROLD, L.D.S., has been appointed Dental Surgeon to the London Hospital.

CREAN, F. S., M.B., M.R.C.S., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

FARMER, F. M., L.D.S., has been appointed Dental Surgeon to the London Hospital.

MESSER, A. W., M.B., M.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Newburn District of the county of Northumberland.

MOORE, R. M., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Malmesbury District of the county of Wilts.

NORTHCROFT, GEORGE, L.D.S., has been appointed Dental Surgeon to the London Hospital.

POLLITT, G. PATON, L.D.S., has been appointed Dental Surgeon to the London Hospital.

SPRAWSON, EVELYN, M.R.C.S., L.R.C.P. Lond., L.D.S., has been appointed Dental Surgeon to the London Hospital.

STEADMAN, F. ST. J., D.P.H., M.R.C.S., L.R.C.P. Lond., L.D.S., has been appointed Dental Surgeon to Queen Mary's Hospital for Children, Carshalton, Surrey.

TOWERS, LYDIA KNIGHT, M.B., B.S. Edin., has been appointed School Medical Officer to the Shropshire Education Committee.

VILVANDRÉ, GEORGE, M.R.C.S., L.R.C.P. Lond., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

WALLACE, J. SIM, M.D. Glasg., L.D.S., has been appointed Dental Surgeon to the London Hospital.

WILLIAMS, J. P., M.D. Lond., has been appointed Medical Officer of the Interior, British North Borneo.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ASHTON-UNDER-LYNE, DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board, residence, and laundry.

AYLESBURY, ROYAL BUCKINGHAMSHIRE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

BANGOR, CARNARVONSHIRE AND ANGLESEY INFIRMARY.—House Surgeon. Salary £100 per annum, with board, washing, and lodging.

BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL, Woodchurch-road.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

BRIDGWATER HOSPITAL.—House Surgeon, unmarried, for six months. Salary at rate of £100 per annum, with board, lodging, and washing.

BRIGHTON, HOVE, AND PRESTON DISPENSARY.—Resident Medical Officer, unmarried. Salary £160 per annum, with rooms, attendance, &c.

BRIGHTON, ROYAL SUSSEX COUNTY HOSPITAL.—House Physician, unmarried. Salary £80 per annum, with apartments, board, and laundry.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—House Surgeon and House Physician, both unmarried. Salary in each case £90 per annum, with board, lodging, and washing.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary at rate of £50 per annum, with board and residence.

CHELTENHAM EYE, EAR, AND THROAT FREE HOSPITAL.—House Surgeon. Salary £200 per annum.

CITY OF LONDON LYING-IN HOSPITAL, City-road, E.C.—Resident Medical Officer for six or four months. Salary at rate of £50 per annum, with board, lodging, and washing.

COLCHESTER, ESSEX COUNTY HOSPITAL.—House Surgeon. Salary £80 per annum, with board, residence, and washing.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Senior House Surgeon. Also Junior House Surgeon. Salaries £120 and £80 per annum respectively, with rooms, board, washing, and attendance.

CROSSLEY SANATORIUM, Delamere Forest, Cheshire.—Assistant Medical Officer. Salary £100 per annum, with board, apartments, and laundry.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant House Surgeon for six months, unmarried. Salary at rate of £50 per annum, with board, apartments, and laundry.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £75 per annum, with residence, board, and washing.

DUMFRIES, CRICHTON ROYAL INSTITUTION.—Pathologist and Clinical Pathologist. Salary £250 per annum, with quarters, board, and laundry.

GLASGOW PARISH COUNCIL DISTRICT HOSPITALS.—Two Junior Resident Assistant Medical Officers. Salary £100 per annum, with board and lodging.

GLASGOW WESTERN INFIRMARY NEW CLINICAL LABORATORY.—Lecturer on Clinical Methods. Salary £400 per annum.

GLOUCESTER, GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry. Also Assistant House Surgeon. Salary £75 per annum, with board, residence, and laundry.

HEMEL HEMPSTEAD, HERTS, WEST HERTS HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with rooms, board, and washing.

LEICESTER EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £250 per annum.

LIVERPOOL, TOWNSHIP OF TOXTETH PARK WORKHOUSE AND INFIRMARY.—Assistant Resident Medical Officer (female), unmarried. Salary £100 per annum, with board, washing, and apartments.

LONDON HOSPITAL DENTAL SCHOOL.—Two Demonstrators, House Surgeon, and Instructor in Dental Mechanics.

MACCLESFIELD GENERAL INFIRMARY.—Senior House Surgeon. Salary £100 per annum, with board and residence.

MANCHESTER, COUNTY ASYLUM, Prestwich.—Locum Tenens, unmarried, for six to eight weeks. Salary 4 guineas per week, with apartments, board, &c.

MANCHESTER ROYAL INFIRMARY CONVALESCENT HOSPITAL, Cheadle.—Assistant Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, with board and residence.

MANCHESTER ROYAL INFIRMARY.—Medical Officer for six months. Salary at rate of £100 per annum, with board and residence.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL.—Honorary Surgeon.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Assistant House Surgeon. Salary £75 per annum, with residence, board, and washing.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £160 per annum, with apartments, attendance, &c.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary at rate of £100 per annum, with board, lodging, and washing.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months. Salary £75 per annum, with board, residence, and washing.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—Junior House Physician. Salary £50 per annum, with residence, board, and laundry.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, N.E.—House Physician for six months. Salary at rate of £80 per annum, with board, residence, and washing.

ROBBEN ISLAND, LEPER WARDS, Cape of Good Hope.—Junior Medical Officer. Salary £250 per annum, with free quarters and two rations.

RYDE, ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—Resident House Surgeon, unmarried. Salary £125 per annum.

ST. MARY'S INFIRMARY, Highgate Hill, N.—Junior Assistant Medical Officer. Salary at rate of £100 per annum, with board and residence.

ST. PANCRAS INFIRMARY (SOUTH) AND WORKHOUSE.—Senior Assistant Medical Superintendent and Senior Assistant Medical Officer. Salary at rate of £135 per annum.

SALFORD UNION INFIRMARY.—Resident Assistant Medical Officer, unmarried. Salary £120 per annum, with apartments, attendance, and rations.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £60 each per annum, with board, lodging, and washing.

SHREWSBURY, SALOP AND WENLOCK ASYLUM.—Junior Male Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, washing, &c.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House Physician. Salary £100 per annum, with rooms, board, and washing. Also Junior House Surgeon for six months. Salary £60 per annum, with rooms, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £90 per annum, with residence, board, and washing.

SUNDERLAND, MONKWEARMOUTH AND SOUTHWICK HOSPITAL.—House Surgeon. Salary £100 per annum, with board and lodging.

SWANSEA GENERAL AND EYE HOSPITAL.—House Physician for six months. Salary £75 per annum, with board, washing, and attendance.

TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £70 per annum, with board, lodging, and laundry.

TAUNTON, SOMERSET AND BATH ASYLUM, Cotford.—Assistant Medical Officer, unmarried. Salary £140 per annum, with apartments, board, laundry, &c.

WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary at rate of £100 per annum, with board, lodging, and laundry.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Physician. Salary £75 per annum.

WESTON-SUPER-MARE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House Surgeon. Salary £80 per annum, with apartments, board, and laundry.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon for six months. Salary £80 per annum, with board, rooms, and laundry.

WORCESTER COUNTY AND CITY ASYLUM, Powick.—Third Assistant Medical Officer, unmarried. Salary £150 per annum and all found.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Act at Matlock, in the county of Derby; at Killaloe, in the county of Clare; and at Charlbury, in the county of Oxford.

Births, Marriages, and Deaths.

BIRTHS.

MUDIE.—On July 26th, at The Buttlands, Wells, the wife of Walter Mudie, Dental Surgeon, L.D.S. R.C.S. Eng., of Stuart House, Ely, and of Wells, Norfolk, of a son.

MARRIAGES.

DALY—JAMES.—On July 29th, at the Parish Church, Paignton, Ashley Skeffington Daly, M.R.C.S., L.R.C.P., to Hilda Maude, daughter of Mr. and Mrs. Arthur James, of Roundham Head, Paignton.

LEES—BOULTON.—On July 26th, at the Parish Church, Cirencester, Alfred Everard Lees, M.B. Lond., to Ethel Maude Essington Boulton, younger daughter of F. T. Essington Boulton, of Ingleside, Cirencester.

PRYCE MORRIS—CRUMP.—On July 26th, at St. Cynfean's Church, Llysfaen, N. Wales, Mr. T. H. Pryce Morris, M.R.C.S., of Newcastle, Staffs, to Kathleen, eldest daughter of the Rev. Prebendary and Mrs. Crump, of Voryn Isa, Old Colwyn, N. Wales, and Hartshill Close, Stoke-on-Trent.

TANNER—CLARKE.—On July 27th, at All Souls Church, Langham-place, W., by the Rev. Alfred Tanner, uncle of the bridegroom, assisted by the Rev. Thomas Turner, John Rupert Waldron Tanner to Iris Litton, daughter of Ernest Clarke, F.R.C.S., of Chandos-street, Cavendish-square, W.

DEATHS.

BROWN.—On July 25th, at St. Levan, Lavender-gardens, S.W., John Brown, L.R.C.P.I., L.R.C.S.I., Knight of Grace of the Order of St. John of Jerusalem, in his 73rd year.

OUSTON.—On August 1st, at 1, Saville-place, Newcastle-upon-Tyne, from pneumonia, Thomas George Ouston, F.R.C.S., aged 42.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

GIBRALTAR.

Sir F. Evans, K.C.M.G., C.V.O., Colonial Secretary of Gibraltar, reporting on the Blue book for 1910, gives the present estimated population as 23,310, that being, of course, the total of both civil and military elements. We have already, and recently, reviewed Major Fowler's excellent report on the sanitary administration of Gibraltar (see THE LANCET, July 8th, p. 117). Although the death-rate was 18·0 per 1000, as compared with 15·09 in 1909, the general sanitary condition was satisfactory throughout the year. The rainfall was 24·01 in., or about 9 in. below the average (33·33 in.) of the last 115 years, whereas in 1909 it was 55·00 in., or 22 above the average. The greatest rainfall in 24 hours in 1910 was 4·53 in. on Dec. 4th. The total number of patients treated in the Colonial Hospital was 673, including 43 remaining in the hospital at the end of 1909. The daily average number under treatment was 45 and the number remaining at the end of the year 1910 was 63. There were 34 deaths. The surgical operations numbered 179, with 7 deaths. The out-patients totalled 10,615. There were 15 patients in the small-pox branch of the hospital and 4 died. In the course of his general observations Sir F. Evans remarks: "Better means of communication with the adjoining country are required. There is an excellent steamboat service between Gibraltar and Algeciras across the bay, but to get to the country beyond the town of La Linea, which is separated from Gibraltar by less than a mile of fairly good road, running across the neutral ground, there is only the sea-shore available. What is much wanted is a well-kept carriage road to join La Linea up with the village of Campamento. If this were provided—and I have reason to believe that surveys are being made with a view to the construction of a road—it would assuredly lead to the opening up of the neighbouring country, and prove of considerable advantage to the residents of Gibraltar, while indirectly adding to the prosperity of the town." The country round the bay of Gibraltar is beautiful, the climate is excellent, and there is no reason to doubt that if proper means of communication were provided many villa residences would soon be built, many persons regarding the situation as rivalling that of any town in the Riviera, both as regards climate and surroundings. The number of persons who pay brief visits to Gibraltar has largely increased of late years. Many stay only a few hours, but others make the place their headquarters from which to visit Spain and Morocco.

A WARNING.

To the Editor of THE LANCET.

SIR,—I should like to warn the profession in London against a man who took some silver articles from my waiting-room a few days ago. He is about 30, well dressed, and speaks with a foreign accent. He presented a card with a foreign name, was clean shaven, and wore "fairy" pince-nez, and carried a book and a parcel, but seems to have called elsewhere the same day under a different name, carrying nothing and (?) wearing a moustache, but no glasses. He showed knowledge not given by the doorplate, and named a friend, who does not know him. Two people here could identify him. The telephone number is 1773 Mayfair, and I should be glad to trace him.

I am, Sir, yours faithfully,

FRANCES EDE.

13, Upper Berkeley-street, Portman-square, W., July 31st, 1911.

MEDICAL CERTIFICATES FOR COUNCIL WORKMEN.

THE Westminster City Council has for some time past had under consideration in committee the question of making a new Standing Order as to the certification of illness of workmen. The Highways Committee recently forwarded to the General Purposes Committee a suggested Standing Order providing, *inter alia*, that in any case in which the committee might deem it expedient sick pay should be subject to the production, at the cost of the council, of a certificate from a medical practitioner appointed by the council that the workman or servant was unable to perform his duties. After perusing the return of workmen's absences during the month of April, 1911, and discussing the matter of the medical certificates received since the operation of the new Standing Order, the Highways Committee recommended that in the case of any man absent from work by reason of illness the assistant city engineer should be authorised to obtain a report from Dr. Norton should he deem it desirable, and the committee suggested that Standing Order LXXXI. should be thus amended. The proposal made by the Highways Committee is one which, if adopted, should in the opinion of the General Purposes Committee, be made applicable to all departments of the council, but before recommending its permanent adoption the committee thought it should be tried temporarily, and the council, on that committee's recommendation, has agreed that the suggestion should be tried as an experiment in the Highways Department until Dec. 31st next, the assistant city engineer to submit at the end of that period a statement giving particulars of the cases dealt with and a report on the result.

THE BATHS OF PÖSTYÉN.

WE have received a brochure which gives an interesting account of this Hungarian health resort and of the methods of treatment adopted there. Pöstyén, the Hungarian name, or Pistyan the German name, is situated in Upper Hungary, 468 feet above the sea, and is picturesquely surrounded by the sloping hills of the lesser Carpathians. It can be reached from Budapest in 3½ hours, from Vienna in 3 hours, and from Berlin in 13 hours. The natural therapeutic agents are a strong sulphur thermal spring, and a warm mud richly impregnated with sulphur. There are also the numerous appliances providing for radiant light and electric treatment. The mud is decidedly radio-active, a property which it retains even when transported abroad for curative purposes. The cases which benefit at Pöstyén comprise rheumatic affections, sciatica, lumbago, gout, and skin diseases. Samples of both the mud and water may be obtained at the London agency, The Pöstyén Thermal Supply Company, 47, Gerrard-street, London, W. The accommodation at Pöstyén is ample, and special efforts are made to secure the comfort of the visitors, while social attractions are not forgotten. The country around is interesting.

CENTRIFUGES FOR BACTERIOLOGICAL RESEARCH AND GENERAL USE.

As is well known, bacteriological research is receiving very considerable assistance from the remarkable improvements which of late years have been made in the apparatus employed for the purpose. This is evident from a very complete list of apparatus, which Messrs. Chas. Hearson and Co., Limited, of 235, Regent-street, London, W., have recently issued. Besides Hearson's well-known incubators, and especially the latest ("the anhydric electric incubator"), in which an absolutely constant temperature is maintained by electric current, for the cultivation of micro-organisms, researches in embryology, histology, and so forth, there are now a series of cleverly designed centrifuges which run at speeds up to 25,000 revolutions per minute and yet which are durable and "quiet working." The list is well worth studying not only in regard to the refinements of bacteriological temperatures and methods of separation, but also in regard to other apparatus (chiefly for incubation purposes), the efficiency of which is based on a similar attention paid to exact demands.

THE PINE-YPTA DISINFECTOR.

THIS is a simple device for ensuring the distribution at regular intervals of a certain amount of disinfectant fluid in the flushing cistern. It acts automatically with each flush, the principle of the disinfector being simply that of a syphon. It consists of a neat glazed earthenware pot containing a greasy paste of, amongst other things, pine oil and eucalyptus. There is a lid which screws tight to a rubber band. The lid is hollow and hump-shaped. There is a perforation at the top of the "hump" and a similar perforation below. The "hump" acts as the syphon. As the cistern fills water enters the lower hole of the disinfector filling the hollow "hump." At rest a certain amount of disinfectant is dissolved. When the cistern is emptied it is obvious that as the water-line lowers to the level of the lower hole of the disinfector the contents are discharged into the cistern. The apparatus, which can be obtained from the Pine-Ypta Automatic Disinfector Company, Limited, 22, Tib-street, Market-street, Manchester, works well and automatically after it has once been placed in the right position. Its action suffuses a very agreeable smell, which is acceptable in its way, but between deodorisation and sterilisation there is a gap.

INTERNATIONAL CONGRESS ON TUBERCULOSIS, ROME.

WE are informed by Mr. J. J. Perkins, the honorary secretary of the National Association for the Prevention of Consumption, 20, Hanover square, London, that the Rome authorities have decided to postpone this Congress, which was to have been held in Rome from Sept. 24th to 30th, 1911, until April, 1912. Further particulars will be published. Previous references to this Congress appeared in THE LANCET of March 11th (p. 708) and March 18th (p. 755), 1911.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced for 1911:—

April-October.—Rome Exhibition (United Italy's Jubilee).
" 29th-Oct. 26th (Turin).—International Exhibition.
May 3rd-Oct. 31st (Glasgow).—Scottish Exhibition.
" 6th-Oct. 31st (Dresden).—International Hygiene Exhibition (British Section opens June 14th).

May 12th-Oct. 31st (London, Crystal Palace).—Festival of Empire Imperial Exhibition. (Profits to King Edward VII. Hospital Fund.)
" 18th-October 31st (London, Shepherd's Bush).—Coronation Exhibition.
" 19th-Oct. 31st (London).—Earl's Court Exhibition.
June 1st-August 31st (Squirrels Heath, Romford).—Town Planning and Modern House and Cottage Exhibition.
July 31st-August 5th (Dijon).—Congress of the French Association for the Advancement of Sciences.
August 1st-6th (Amiens).—Twenty-first French Congress of Alienists and Neurologists.
" 3rd-5th (London).—British Dental Association, Annual Meeting.
" 12th-18th (Brussels).—First International Congress on Child Study.
" 12th-30th.—E.M.I. (Enseignement Médico-mutuel International) Tour in Scandinavia.
" 15th-21st (Dublin).—Royal Institute of Public Health.
" 21st-23rd (Larvik).—Fourteenth Norwegian Physicians Congress.
" 28th-Sept. 11th (South-East of France).—Eleventh "Voyage d'Etudes Médicales."
" 30th-Sept. 2nd (Berlin).—Third International Laryngo-Rhinological Congress.
" 30th-Sept. 6th (Portsmouth).—British Association.
" 31st and Sept. 1st (Vancouver).—Thirteenth Annual Meeting of the British Columbia Medical Association.
Sept. 4th-9th (Yarmouth).—Sanitary Inspectors' Association. Annual Conference.
" 5th-7th (Philadelphia).—American Electro-therapeutic Association.
" 9th-11th (Ostend).—Fifteenth Flemish Nature and Medical Congress.
" 11th-13th (Vienna).—German Urological Society.
" 11th-15th (Berlin).—Third International Conference on Infantile Mortality (*Gouttes de Lait*).
" 11th-16th (The Hague).—Thirteenth International Congress on Alcoholism.
" 12th-15th.—Celebration of the 500th Anniversary of the Foundation of the University of St. Andrews.
" 18th-23rd (Sydney).—Australasian Medical Congress.
" 23rd-Oct. 21st (London, Olympia).—Electrical Exhibition.
" 25th-29th (Karlsruhe).—Eighty-third Meeting of German Physicists and Physicians.
" 26th-28th (Louisville, Ky.).—American Association of Obstetricians and Gynecologists.
" 26th-30th (Brussels).—Third Congress of the International Society of Surgery and Exhibition of Fractures.
" 29th (Edinburgh).—Association of Veterinary Officers of Health. Annual Meeting.
September (Genoa).—International Exhibition of Marine Hygiene.
" (Turin).—Congress of the Association of Italian Railway Physicians.
" (London).—Bakers' and Confectioners' Exhibition.
" (Manchester).—Second Conference of the British Hospitals Association.
September-November (Antwerp).—International Exhibition of Alimentation, Brewing, Wines, and Liqueurs.
Oct. 1st-4th (Liége).—Second Congress of Alimentation.
" 2nd-5th (Turin).—International Congress of Pathology.
" 2nd-6th (London, Royal Horticultural Hall).—Seventh London Medical Exhibition.
" 2nd-7th (Dresden).—Third International Housing Congress.
" 2nd-7th (Paris).—French Congress of Surgery, Twenty-fourth Annual Congress.
" 3rd-6th (London).—Dairy Show.
" 5th-8th (Turin).—Fourth National Congress of Hygiene.
" 9th-12th (Turin).—Twenty-first Congress, Italian Society of Internal Medicine.
" 9th-13th (Cologne).—Seventh International Congress of Criminal Anthropology.
" 22nd and 23rd (Lyons).—Twelfth French Congress of Medicine.
" 25th-27th (New York City).—Annual Conference of Sanitary Officers of the State of New York.
October (Paris).—International Sanitary Conference (to Revise the International Sanitary Convention of 1903).
" (Paris).—First Congress of the International Medical Association for the Prevention of War.
November (London).—Motor Exhibition.
" (Manchester).—Smoke Abatement Exhibition.
Dec. 4th-9th (Havana, Cuba).—American Public Health Association.
December (Moscow).—Third Pan-Russian Therapeutical Congress.

In 1912:—
Jan. 29th-27th (Hong-Kong).—Second Biennial Congress of the Far Eastern Association of Tropical Medicine.
April (Rome).—Seventh International Congress on Tuberculosis.
" (Rome).—Seventh International Congress of Dermatology and Syphilology.
Spring (London).—Second Optical Convention.
May 31st-June 2nd (Berlin).—Sixth International Congress of Obstetrics and Gynecology.
May (London).—International Horticultural Exhibition.
July (Liverpool).—British Medical Association, Eightieth Annual Meeting.
Sept. 23rd-28th (Washington, D.C.).—Fifteenth International Congress on Hygiene and Demography.
September (Prague).—International Congress of Radiology and Medical Electrology.
(Budapest).—Tuberculosis Exhibition.
(Stockholm).—Olympic Games.

In 1913:—
Aug. 6th-12th.—(London).—Seventeenth International Congress of Medicine.
(London).—Historical Medical Exhibition. (Organised by Mr. Henry S. Wellcome.)
(Chicago).—Congress of the International Association of Refrigeration.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Low: Malaria.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. Bernstein: Clinical Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Simson: Diseases of Women.

THURSDAY.—10 A.M., Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. Dr. Simson: Gynæcological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Morton: Radio-therapeutics and the Use of Solid Carbon Dioxide.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Medical Registrar: Demonstration of Cases in Wards. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (7th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London, (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.20 A.M. and 4 P.M.).

WEDNESDAY (9th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham

(Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (10th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (12th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.), Hospital operations are performed daily.

EDITORIAL NOTICES

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

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Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. I. of 1911, which was completed with the issue of June 24th, were given in THE LANCET of July 1st.

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VOLUMES for the first half of the year 1911 are now ready. Bound in cloth, gilt lettered, price 16*s.*, carriage extra.

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METEOROLOGICAL READINGS.

(Taken daily at 12 noon by Steward's Instruments.)

THE LANCET Office, August 2nd, 1911.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
July 27	29·96	S.W.	...	133	85	61	64	72	Fine
,, 28	29·99	S.E.	...	127	91	68	68	75	Fine
,, 29	29·96	E.	0·69	131	89	68	68	73	Cloudy
,, 30	29·94	S.W.	0·07	119	76	65	67	70	Cloudy
,, 31	30·00	S.E.	...	129	82	64	66	71	Cloudy
Aug. 1	29·98	S.W.	...	130	84	66	64	73	Cloudy
,, 2	30·17	S.W.	...	123	75	61	61	66	Fine

The following journals, magazines, &c., have been received:—Indian Medical Gazette, Local Government Review, Australian Medical Gazette, Bulletins et Mémoires de la Société Médicale des Hôpitaux de Paris, The Therapeutic Gazette, United States Naval Medical Bulletin, Journal of Nervous and Mental Disease, Archives de Parasitologie, Archives of Pediatrics, Medico-Surgical Journal of the Tropics, Revue de Gynécologie, South African Medical Record, St. Thomas's Hospital Gazette, Annali di Medicina Navale e Coloniale, Bio-Chemical Journal, Archives Internationales de Neurologie, Charing Cross Hospital Gazette, Journal of Anatomy and Physiology, Recueil d'Ophtalmologie, Australian Medical Journal, British Journal of Dental Science, Transvaal Medical Journal, Archives of Internal Medicine, Journal of the Royal Sanitary Institute.

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